Thomas H. MORAY

Transmutation of Ores

Thomas Henry Moray

~ Contents ~

[Progress Report]

[Addendae (Correspondence with John Moray)]

[US Patent # 2,460,707: Electrotherapeutic Apparatus]

Progress Report:
Recovery of Minerals from Low Grade Ore by High Energy Bombardment

by Research Institute, Inc. (Salt Lake City, UT)

Presented at the 68th National Western Mining Conference, Denver CO (February 4, 1965)

Table of Contents ~

Preface
I. "Great Expectations for Artificial Transmutation" ~ Dr. W. J. Hooper
II. "History of Research" ~ Ruth L. Hendricks
III. "Statistical Evaluation Report" ~ Thomas E. Rudolph
Annex A ~ Resumees
Annex B ~ Graph of Dose Rate Reactions
Annex C ~ "Recovery of Minerals from Low Grade Ore by High Energy Bombardment"
Statistical Analysis
Affadavit
Risk Analysis
Comments

Preface ~

This booklet is a compilation of papers presented at the 1965 National Western mining Conference by Thomas E. Rudolph, Ruth L. Hendricks, and Dr W. J Hooper on the mineral recovery process pioneered by Research Institute, Inc., a Utah corporation. A resumee of their qualifications is given in Annex A [Not included here].

The paper by Mrs Hendricks gives the history of the project. Mr Rudolph's paper gives the statistics and information dealing with commercialization of the process, and Dr Hooper's paper presents a scientific explanation of what reaction occurs during the process. A graph at the end shows the sine curve effect which occurs when dose rate is plotted against yield, as mentioned in Mr Rudolph's paper.

Great Expectations for Artificial Transmutation

Dr W. J. Hooper
Consulting Physicist, Prof. Emeritus, Principia College

A year ago, Mr John E Moray of the Research Institute, Inc, at Salt Lake City addressed this conference by giving a paper entitled "Recovery of Minerals from Low Grade Ore by High Energy Bombardment". Among other things, this paper outlined some of the recent success which his organization had experienced in the recovery of gold, silver and platinum from low grade ores. A study of the many experiments carried out by Mr Moray and his coworkers, with assays made by a wholly independent firm, of ore samples before and after irradiation by the Moray process, is indeed most impressive. I find no avenue of escape whereby the validity of these experiments can be dismissed lightly. Transmutation of elements from one element to another, either one rung higher on the ladder of atomic weights, or one lower, is no longer considered phenomenal. What is unique and of great interest in the work of the Research Institute is that its workers appear to have discovered a way of causing a rapid buildup of atoms of relatively low atomic weights to those of much higher atomic weighs such as silver, platinum and gold. My services were solicited in an effort to find out just what could be going on in these experiments to make such a result possible. To give a brief outline of what this process appears to be is the reason for my presence today.

First of all, I will cite on of several tests carried out n an effort to ascertain whether the modus operandi was actually one of transmutation from elements of low atomic weights to those of the noble metals. A solution was prepared --- made up of Baker's reagent quality solid chemicals of the highest purity and water, distilled by boiling. These bottled chemicals list the trace materials which might be existent in them in very small amounts. Gold did not appear on any of these lists even in trace amounts. No atoms of higher atomic number than 19 were present in quantity in this solution. Silver has the atomic number 47, and gold 79. This prepared solution of pure chemicals in glass containers was irradiated by high energy photons for about one minute and then by evaporation the residue was dried and sent to an independent assayer company for analysis. I hold a copy of their report in my hand. It reads 929.76 oz/ton of gold and 113.04 oz/ton of silver. The value of gold per ton in this residue is quoted at $32,506.60 [1965 prices].

Gentlemen, it is my carefully considered opinion that this experiment, along with many other experiments involving low grade ores, marks a turning point, a new era if you will, in mining history and the production of precious metals.

How can modern physics explain the experiment I have just described? In 1952, two research workers, Nagaoka and Miethe, reported the production of gold: first by irradiation of mercury and paraffin oil by an electric spark from an induction coil capable of giving a 4 foot spark in air, and second, by a heavy mercury vapor arc at atmospheric pressure. Our knowledge of atomic structure at that time was so meager that these experiments were unexplainable in orthodox terms. Other experimenters tried to duplicate this work and failed. The whole idea was discounted and dismissed on the basis that there were "no theoretical grounds for supposing the process possible".

Today we live in a new era of physics. In 1925 the atom was theoretically composed of electrons and protons. But today, modern nuclear physics has revealed by theoretical study and experimentation involving radioactive particles, cosmic rays, and high energy particle accelerators, that there are other particles in the nuclear structure of the atom. The neutron, the positron, the photon, the neutrino and antineutrino, the mu and pi mesons, and at least 16 other strange particles have been discovered. Just how all these particles will fit into the final basic structure of the nucleus of the atom is the present problem of modern nuclear physics. In the words of Wehr and Richards, "Let us hope that of this chaotic riddle will come a profound and simplifying answer. We may be likened to those who knew only Ptolemy's complex description of the solar system. What we need is a Copernicus to assimilate and interpret the data with a generalization which will not only solve the riddle but lift our sights to levels we cannot now foresee."

But let us go back to our problem. To gain some understanding of what is going on in our experiment, we can pretty well rule out by input energy considerations all the particles mentioned except the proton, the electron, the photon, the neutron, and the neutrino. The interactions between these particles are beginning to be understood, although much remains to be discovered. What we have learned thus far has, however, enabled theoretical physicists to devise theories as to the manner in which the elements we now find in the universe were originally put together by nature herself. The theory set forth by Professor Gamow and his co-workers is the most popular and widely accepted. It explains how, under proper physical environment all the atoms in the universe, from the lightest to the heaviest could have been built up in the relative abundances in which we now find them, within the short period of approximately 35 minutes. The necessary starting point of this theory consists of a huge dense mass of neutrons which is suddenly subjected to great expansive motion. This is thought to resemble the state of the universe some 5 billion years ago, and is sometimes referred to as the Big Bang Theory of the Expanding Universe. Neutrons are radioactive. When free they naturally decay into protons, electrons and neutrinos. But protons, which are hydrogen nuclei, and indeed all nuclei, are known to capture neutrons and combine with them (4). In this reaction the captured neutron merges with its captor and upon the emission of an electron forms a new nucleus of an element one rung higher on the ladder of atomic numbers. Once commenced, the buildup of atomic nuclei can proceed at a very rapid rate. In very brief outline this was, according to Gamow's theory, nature's original modus operandi of making the elements. Now within the Moray experimental solutions which were under high energy photon bombardment, the situation is quite different from that of 5 billion years ago as just described. We do, however, have much in common with the Gamow Theory of nuclear evolution. Under intense high energy photon bombardment, the solution of chemicals will necessarily suffer much high molecular disassociation and atomic ionization. There are excellent reasons for expecting that within the liquid, a dense atmosphere of slow neutrons will be formed by excited proton capture of free and orbital electrons. The vast majority of these neutrons, we know, and its subsequent emission of an electron, will give rise to the elevation of that nucleus to a new increased atomic number. The atmosphere within the liquid should abound with high energy photons, or x-rays, and with neutrinos, all aiding in the formation of neutrons and their subsequent capture by nuclei undergoing rapid transmutation. This, briefly, is the preliminary picture of the process which we visualize as taking pace in these experiments.

A point of great interest in the experimental test I have described in some detail is that the specks of gold found in the residue of the solutions reveal a marked crystal structure under microscopic examination. It is a coincidence that Miethe, back around 1925, had found his formation of gold to be in small crystals also. I have examined one of these specks with a microscope and have seen the beautiful fold colored crystal pattern. One must conclude from this that the process we have described is in reality a crystal growing bath activated by irradiation. As the gold atoms come into being by transmutation, they become gregarious, which results in the crystal formation.

From this observation there is every reason to suspect that low grade ores and mine tailing provide, not only seed for crystal growth, but also a nuclei environment which is well advanced, or uniquely favorable, for the formation of the precious metals by transmutation.

In conclusion, then, what can be said for this upgrading transmutation process which has suddenly appeared as an applied baby of neutron physics? The potentialities of this transmutation process appear so prodigious that I hesitate to predict its possible future. It might well influence and possibly shape the future production of not only the noble metals, but of all metals as well as other elements including those that are rare. One thing seems certain to me, and that is that we are witnessing the dawn of a new day in the God-given dominion of man over his physical environment. The horizons appear rich in promise for the mining industry! Personally, I feel privileged to be associated with his new field of research.

History of the Research Project

by Ruth L. Hendricks

Last year at this time Mr John E. Moray spoke on the "Recovery of Minerals from Low grade Ore by High Energy Bombardment". Early work in the field of transmutation and photodisintegration reactions was discussed, including first the use of natural radioactive sources of bombarding particles, and more recently the use of various particle accelerators. It is now known that many elements can either be built up by the capture of these particles or broken down by collisions with them.

Although recoverable amounts of several metals have been produced, our work has been primarily aimed at increasing the yields of the precious metals, particularly gold and silver. Early work done with specially made irradiation equipment was described a well as later tests made on commercially available particle accelerators. These tests gave yields of from 50 to 100 ounces of gold per ton and as much as several hundred ounces of silver per ton. It must be mentioned at this time that when virtually no gold or silver values can be determined in the raw ore (i.e., they assay from trace to a few hundredths of an ounce of gold per ton), after irradiation and drying the gold and silver can be identified by standard fire assay or any other normal determination method.

Early in 1964, when Mr Rudolph and I began work on the process, the primary problem was to develop a solution environment which could be reproduced consistently and at a cost which would permit commercialization of the process. With little information available, it was done mainly by trial and error.

During this work a number of different ores were used along with many solution. Originally this complicated the problem but later added to the useful information as we found that a solution which worked well with one ore would not necessarily give any yield with another ore. This led to the development of several good solutions, one or several of which will work well on most ores.

None of these solutions require any aging, that is, they can be used immediately after mixing. They can, however, be stored without adverse effects. All can be produced at a cost of $50 or less per 100 gallons. This is approximately the volume of solution required to process one ton of ore.

The ores we have used fall into three main categories. All contain from trace to a few hundredths of an ounce of gold per ton. Although we have tried higher grade ores, they seem less adaptable to this process. The increase in values is much less than in low grade ores. One type of ore is simply low grade unprocessed gold ore. The second is mill tailings. This type has a number of advantages such as being inexpensive, available in large quantities, and already ground. For these reasons a great deal of work has been done with this type of ore with excellent results. The third variety of ore is natural sand. Although fewer different ores of this type have been tried, they also have usually given good yields.

When it became evident that our results with one particular ore and solution combination were consistently high, it was decided to being a pilot operation with this combination. The irradiation unit which we had been using at our laboratory would process only a small amount of ore per day, but it was felt that production on this unit would teach us a great deal about commercialization of the process.

Since all out sample work had been done in glass and porcelain containers, we began testing various materials to determine what type of handling equipment could be used. To our surprise the reaction was found to be quite sensitive to interference to nearly every other material. Plastics could not be used, nor could stainless steel, or most varieties of rubber or brass. Copper could be used if it was in one continuous piece. Although we do not fully understand this interference, indications are that it is due to electrostatic charge or particle position in the solution.

To avoid interference, the ideal handling system would be all glass, but with a limited time schedule as well as a limited budget, this was impossible. A conveying system was finally chosen to move the slurry under the irradiation dead. Our system consisted of a mixing tank outside the radiation chamber with a hand-operated valve for filling the conveyer dishes. The conveyer moved the material under the radiation beam, then dumped it into a catch tank. A screw conveyer them moved it out of the radiation chamber to drying tanks.

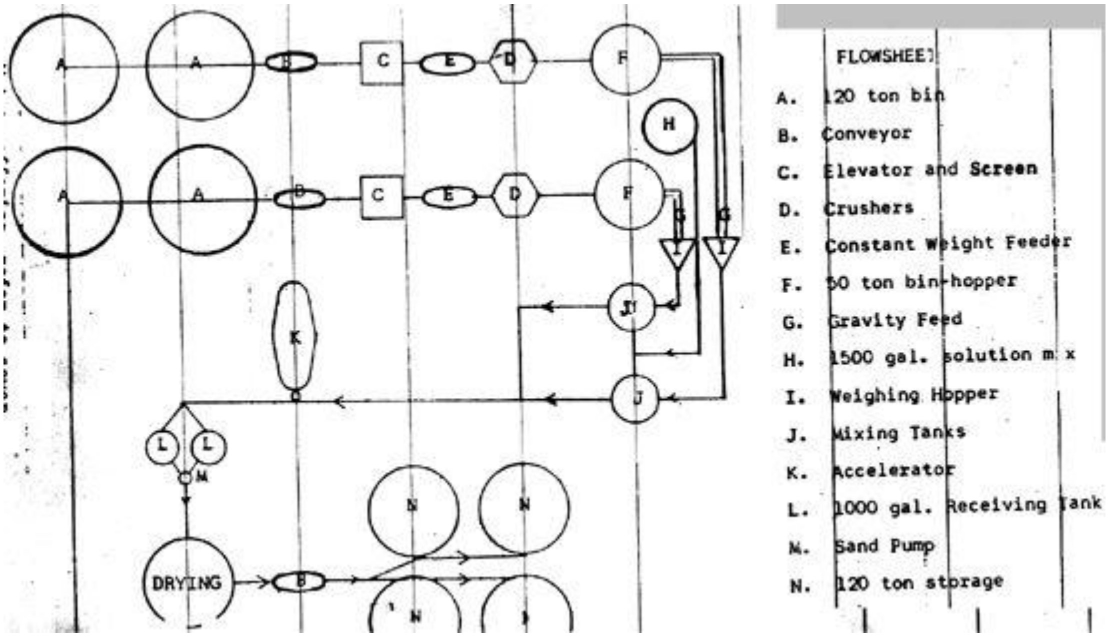
Heavy gauge sheet copper was used to build the mixing tank. Since all available mixing devices were made of metal, we were forced to construct our own. This was done with a wood shaft and a wooden airplane propeller. The valve on the tank was probably our greatest problem. We tried a number of different ones during our month of operation. These included resin-coated gate and quick-open valves, and an assortment of others which we made out of wood and wood and copper combinations. Although our efforts improved, this problem was never completely solved.

The conveyer was also a "do-it-yourself" project as nothing of the type needed was available. We built a chain type conveyer and mounted pyrex baking dishes on it. A grain auger was used to convey the material back out of the radiation chamber.

The system was definitely crude but it provided a wealth of information, both on handling methods and materials and on their effects on the reaction.

Or present plans for a commercial operation do not include a conveyer system. We originally tried a pumping system but, because of the difficulty of securing a slurry pump which would not interfere, we were forced to use the conveyer. Recent work has shown that we can bypass this problem by using suction rather than a pump. This facilitates having an all glass system since the slurry would not come in contact with the suction pump.

During the last year we have made more than 1200 tests with assays on each of these. In conjunction with the 200 plus tests run in the 3 years previous and a number run before that time, these give an extensive backlog of information on the reaction. These include both the practical aspects of the process and work to develop and prove the theory of the reaction.



Statistical Evaluation Research Report
by Thomas E. Rudolph

I became involved in the mineral recovery process in February 1964 in an effort to standardize the environmental solution used on our ore samples. Our first samples were irradiated on a Betatron and showed no commercially feasibility results. Since we planned an active test program, an irradiation unit large enough for our testing and pilot plant operation was purchased.

We began testing on this unit using different solutions and ore samples. For the first 50 tests, low yields were obtained. Then, six samples yielded from 4 to 7 ounces of gold per ton. Efforts to duplicate these samples failed, however. Then, using the same solutions on a different ore. Results ranging from 6 to 9 ounces per ton were obtained. Attempts to duplicate these samples were successful and later attempts to refine the solution raised the yields to the range of 8 to 10 ounces per ton. As we investigated further, we began to find out more about the reaction and our yields went up to the 100 to 200 ounces per ton range using solutions which were cheap enough to be commercially feasible. The overall average of all these tests was 128.5 ounces per ton.

At this time we set up a small pilot plant in our lab in order to check out several handling systems. Because of the constant experimentation, no great amount of material was ever run through the pilot plant. The final total was about 800 pounds when the pilot plant was adjudged a success and shut down. This pilot plant used production size samples but ran at a slower rate than a production operation would, so that a good indication was given of what yield we could expect in a production operation. The overall average of this plant was 19.2 ounces per ton. However, because the production size samples were quite large for our plant, the standard deviation was quite high.

Although our pilot plant average was high enough to show commercial feasibility, we wanted to get the standard deviation down to a level so that we could predict with 99% accuracy that our operation would be commercially feasibly. We also felt that it was time to check these slurries on a larger irradiation unit to see if it gave similar results. We decided to conduct these tests in two series, the first to be a statistical test to determine what variables gave significant differences in yield and the second, to determine which settings of these variables gave the best yields. It was felt that if these tests would show a 99% assurance of commercial feasibility, no further tests would be necessary as we would be sure to get even higher yields in production when we had the optimum operating conditions pinpointed.

For these tests we traveled to Varian Associates in Palo Alto, CA to rent time on their 8 Mev Linac. In the first series of tests, we tested dose, dose rate, slurry depth, shield material, electron volts setting, shield height, and distance from sample from irradiation head. The shield was a thin sheet of material placed over the sample when irradiating with an electron beam. In main effects, only electron volt setting showed up as significant, with the high voltage setting being better than the low. In addition, several interactions between variables showed up as being significant. An interaction between two variables means that when either variable is changed singly, the results remain unchanged, but when the two variables are varied together, a significant difference results. Statistically speaking, interaction between more than two variables is extremely rare; however, with the number of interactions between two variables which we encountered, I would say there is a good chance that interaction between three variables or perhaps even more may be present. The following interactions seemed to be the significant ones:

(1) Shield height - voltage
(2) Dose rate - voltage
(3) Dose -voltage
(4) Distance of sample from head - shield height
(5) Solution depth - shield material
(6) Slurry depth -voltage

These results all tend to indicate that a higher voltage would give much better results.

In the next series of tests, we set the machine so that the significant interactions would be at their best settings and tested doe and dose rate. This was done in order to get some idea of what production rates could be expected. The second series showed that does and dose rate were probably significant as we were able to show differences at different settings and got a sine curve effect on our graphs which would tend to break sown our earlier statistical tests on these two variables as the tests were designed for straight line or exponential variations. With these later tests we were able to find better operating conditions which give better yields. We felt that these conditions might be best evaluated in production as it would be much cheaper and easier then to set up an evolutionary operation testing program while running production and these tests were already enough to prove commercial feasibility.

A total of 56 production size samples and 6 beaker tests were irradiated on the Linac. Using these as a basis of calculation, it was possible to get a fairly accurate figure to indicate what we could expect in a production operation. The 6 beakers were included because they were of a production nature also.

In spite of the fact that these tests were conducted at a wide range of machine settings in our search for optimum conditions, we still averaged 15.16 ounces of gold per ton. Statistical calculations show that we can be 97.5 % certain that even at these conditions our production average would be better than 10.51 ounces of gold per ton. Since in a production operation we would be operating at optimum conditions at all times, the average is almost sure to be higher than this. These calculations show that with a small risk involved, a yield of around 15 ounces of gold per ton can be anticipated. We also found that a dose of 0.16, 0.5, 2.0 and 4.0 megarads gave the peaks on the sine curve for dose. A dose rate of 4 megarads per minute gave the highest peak on the dose rate curve.

Since that time we have irradiated several more samples on the Linac and very few have shown any worthwhile results. Since the earlier statistical results show that there is an extremely small chance that this drop in results could occur without a specific cause, we have not been too concerned about these results. We believe that a small change in our test procedure, which we thought insignificant at the time, has caused the results to drop, although we have not yet had an opportunity to check out this theory.

On the basis of our statistical results, we are sure the process holds great possibilities for the mining industry, and recommend that the industry adopt the process of ore irradiation before milling.

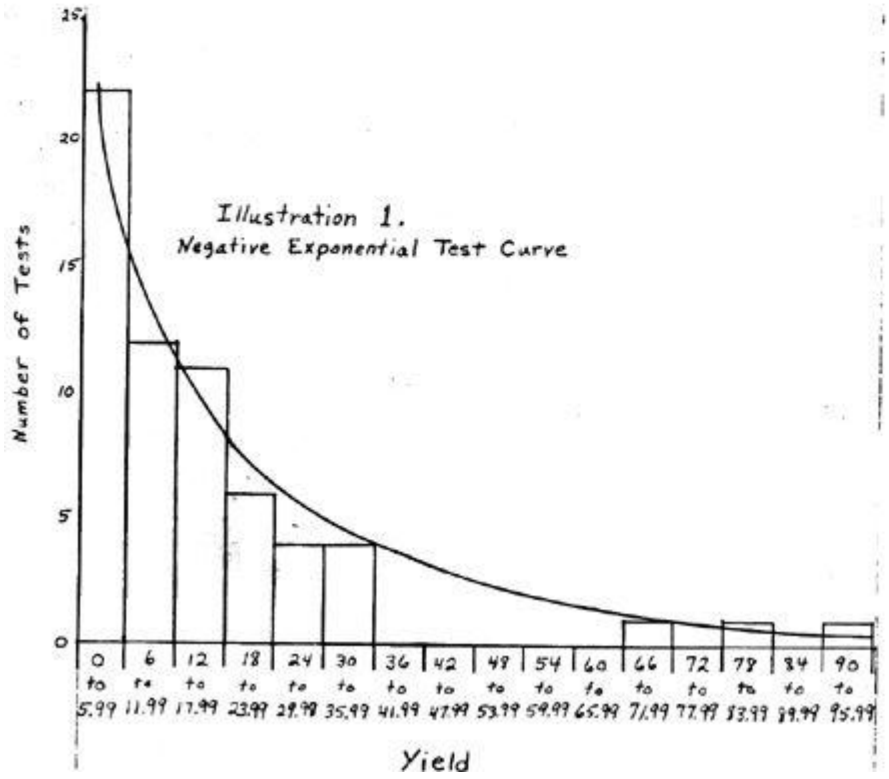


Illustration 1.
Negative Exponential Test Curve

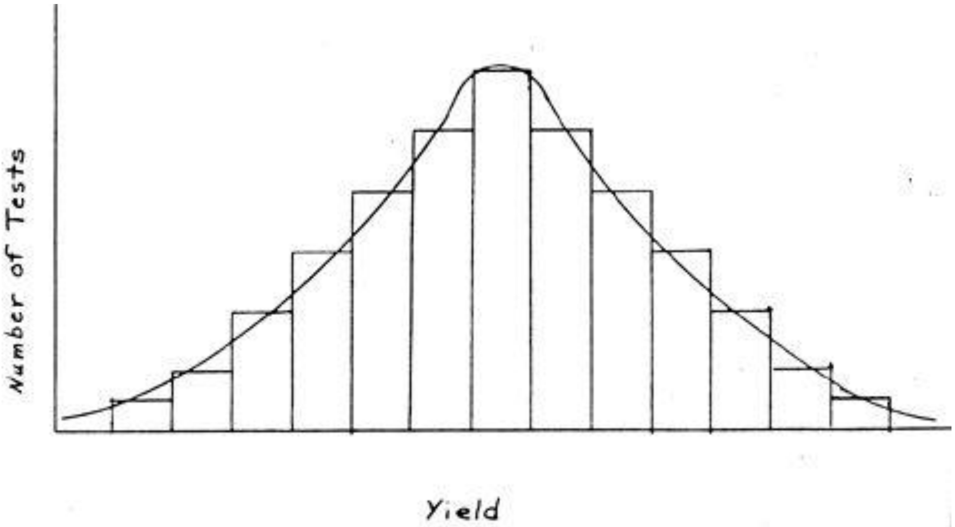
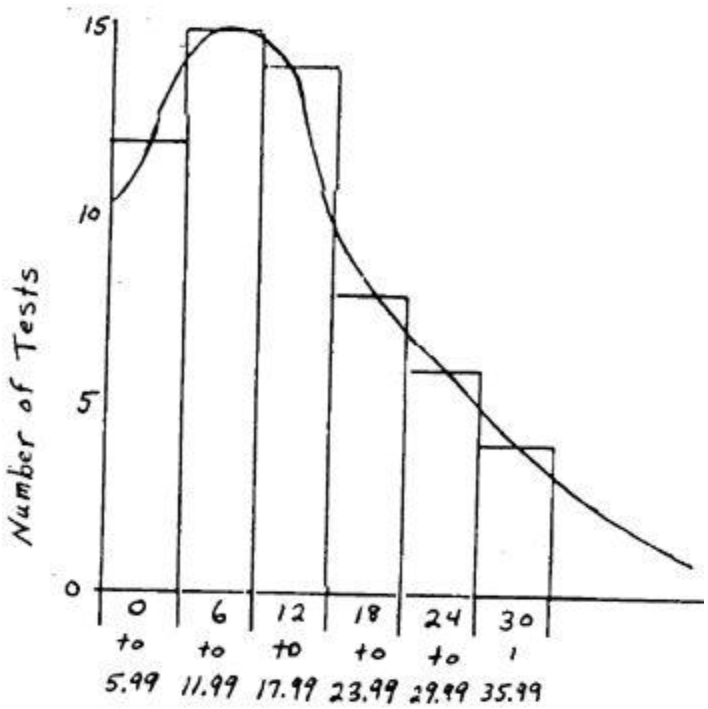
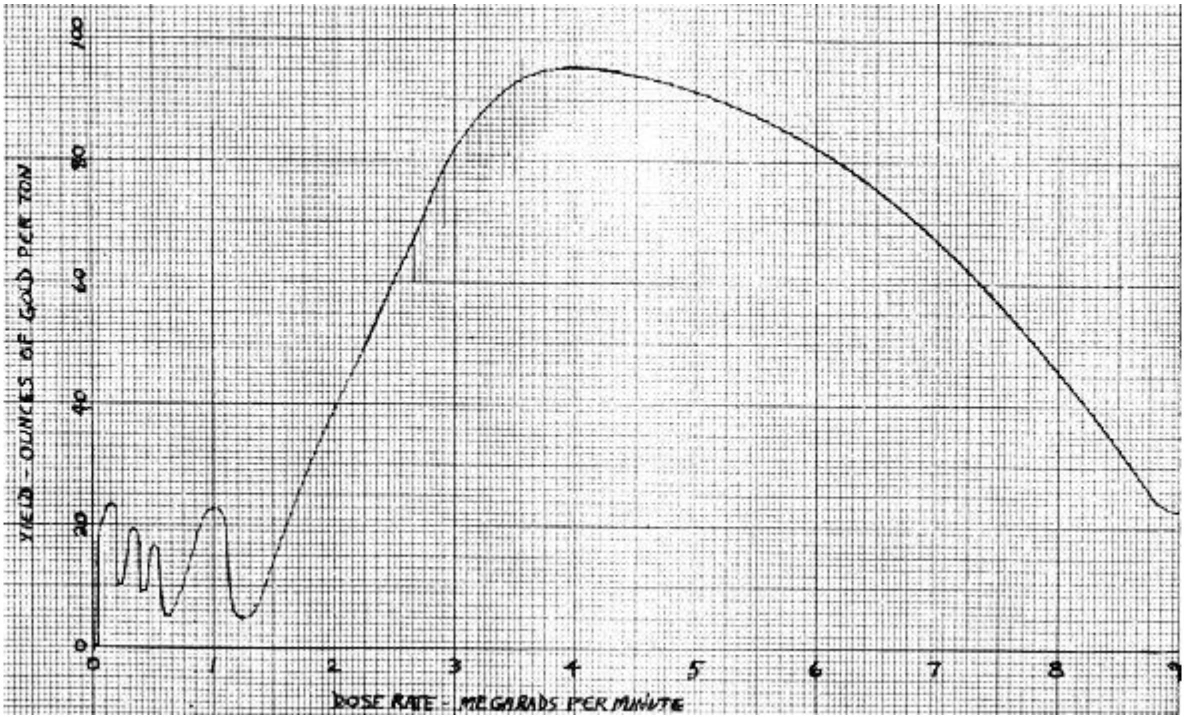


Illustration 2. Normal Distribution



Annex A ~ Research Institute Inc. Personnel [Not included here]

Annex B ~ Dose Rate-Yield Graph



Annex C ~

Recovery of Minerals from Low Grade Ore by High Energy Bombardment
by T. Henry Moray & John E. Moray

Talk given by John Moray at the 67th National Western Mining Conference (Denver, CO, February 7, 1964)

Particle Transformation By Energy Acceleration ~

There is ample scientific evidence that the theory and experimental findings obtained in the field of particle transformation by bombardment with high-energy particles to enhance the recovery of minerals prove the research reports and accomplishments presented by the Research Institute are sound and correct. Scores of the world's greatest scientists agreed that this type of reaction can be had. Nearly every element has now been converted into other elements by bombardments with high-speed particles.

More than a thousand nuclear reactions are now known, an astonishing development since the first induced nuclear reaction in 1919. The long-awaited flower of transmutation, breeding, disintegration "aging", call it what one will, has now broken into full blossom. The great number of energy reactions requires a systematic correlation and explanation which is developing into a new field of nuclear research and associated chemistry and electronic engineering.

Early experiments in the field of transmutation pioneered by Lord Rutherford, Chadwick, Curie, Joliot, etc., utilized natural radioactive sources to provide bombarding projectiles. This source of energy has now given way to electrical systems of particle acceleration. The techniques of artificial acceleration have put transmutation on a totally different plane. The accomplishments of great scientists are not longer surprising. It is no longer considered impossible to cause an artificial transmutation. Though there are still unanswered questions about the reactions and of this energy release, it has been established that transmutations have been accomplished by the protons, neutrons, deuterons, alpha particles, and other projectiles brought into play by high energy accelerators.

This bombardment of matter with high energy particles has placed in our hands a powerful method of studying the artificial transformation of the nuclei of ordinary elements, not just radioactive elements. Proof exists that many of the ordinary elements (those without radioactive isotopes) also consist of a mixture of isotopes. An isotope may be defined as any two or more forms of an element having the same atomic number and similar chemical properties but differing in atomic weight and radioactive behavior. The accepted atomic weight of an element is the average of the nuclear masses of all the isotopes the atom may contain. In some cases it is possible for the nucleus of an isotope to exist in more than one energy level. This is thought to be due to the higher having a higher angular momentum. This phenomenon (isomeric transition) gives rise to two routes of decay. It has been established that when a particle penetrates into a nucleus, Coulomb's law of repulsion no longer completely regulates the particles' behavior. In other words, the bombardment of the atoms of ordinary elements has resulted in the disintegration of the nucleus of the atom with the expulsion of a swift proton and resultant transformations. There is now evidence that science can not only cause a disintegration of a nucleus with loss of mass, but can also build up a nucleus of greater mass by the capture of colliding particles.

It has actually been found possible to induce nuclear transmutations by use of radium C whose energy is only 5.5 Mev and below the energy barrier of the nucleus. Speaking of this, Dr Cork said: "This incompatibility was reconciled by the wave-mechanical treatment of the process. Wave mechanics coincide a finite probability for a particle with an energy less than that of the peak of the barrier being able to penetrate it". The greater the energy of the particle and the lower the barrier the greater the possibility of its passage.

It is also felt by this laboratory that the resonant energy levels become important in the transaction. If a particle is propelled at a resonant frequency toward a nucleus by use of an electronic means, the barrier may be overcome and transition take place.

Transmutations by the bombardment of matter with high energy particles being well established, it must now be accepted that the long sought goal of changing one element into another element is an established fact. This was first accepted as being accomplished in 1936 when platinum was changed into gold.

$Pt^{196} + H^{2} => Pt^{197} + H^{1}$

Pt^{197} (18-Hour Half Life) $=> Au^{197} + {}_{-1}e$

The above shows that the platinum-197 formed in the bombardment decays by beta emission into ordinary gold.

In 1938 two German scientists, Otto Hahn and Fritz Strassman, were bombarding uranium atoms with neutrons. As had happened they expected the uranium atoms to absorb the neutrons. Instead, when the neutrons hit the uranium, the atoms split, forming two new elements, barium and krypton.

The process of photodisintegration has yielded much useful information on certain interactions such as the neutron-proton and other sources of reactions.

Lord Rutherford and his collaborators in Cambridge, England, succeeded in converting nitrogen atoms into oxygen atoms by bombarding nitrogen with his speed alpha particles, they reported "nearly every element ha no been rendered radioactive and converted into other elements."

Ionium, an isotope of thorium, was found to "grow" or "breed" radium at a rapid rate.

Over 15 years ago mercury was changed into gold. The US Bureau of Standards has changed gold into mercury.

Artificial transmutation of one element into another with high-energy particles is now routine practice in many laboratories, according to Dr Normal E. Gilbert of Dartmouth College, Then the question arises, why has it not been done commercially?

The equipment for particle acceleration that will accomplish transmutations can be secured on the open market. Although the cost is not cheap, this equipment is furnished with accessories including the generator, tube system, control console, target extensions, and other standard accessories.

This equipment is to some extent a prototype if what is used in the famous laboratories of America and Europe where extensive research in this field is being done. Reports from Germany and England give proof of success in this field, at least on a laboratory scale.

With all the great successes of others, what do the developments from the Research Institute, Inc., have to offer which differs from that which is presently being accomplished by others?

The Research Institute followed on the work of its predecessor, the Moray Scientific Laboratories, which began research in this field in 1923 and followed during the years since 1940 and more extensively since 1954. Unique means have been devised to cause this reaction under controlled methods with consistent results with the addition of (for lack of a better terminology without disclosing too much) a catalyst (a flux or reduction agent, an environment). This is how out development differs from others, combined with the bombardment of the material under treatment by an energy "bombardment tube" developed specially for the Research Institute.

It has been shown that known laws of nuclear physics and known astronomy processes lead to the acceptance that element building is now known to be an accomplished fact. The new ideas on element building in stars coming from the work of many astronomers only further prove the fact that element building does occur.

Breeders that "grow" more particles of matter through nuclear reaction in proportion to the energy consumed in their production prove it s feasible to utilize the vast supply of isomeric material of unaged geological formation and "cook" them by the use of particle acceleration from their present stage to another stable atom. This means minerals contained in the material in its "unstable", "geological unaged" state that has not been effected by cosmic bombardment, which are not rich in recoverable values can by radiation bombardment, be transmuted to a stable, higher mineral content ore.

What practical results can accrue to the mining industry by the development of this method of processing?

The conclusion reached after years of practical experimentation and research in analyzing the nature, character and commercial feasibility of values existing in these forms of mineral deposits, clays, and sands, show that herein lie the true and greatest mineral values of the world. Although they are not always determinable to commercial assayers before bombardment, their recovery by properly developed bombardment by particle acceleration in a "suitable environment" in highly commercial quantities is possible.

This could mean existing mines, which under present recovery methods cannot be operated at a profit, could become highly profitable producers.

We contend that what can be done in an atomic pile with fission in a breeder reaction and in stellar space can be done by artificial radiation.

Recovery of Minerals from Low Grade Ore by High Energy Bombardment ~

It has been observed as early as 1940 that after bombardment of low grade ores in an "environment" with high speed electrons and x-rays, considerably larger amounts of various metals within the ore were identified chemically and by fire assay. It has also been observed that by varying the environment around the ore, the changes that took place within the ore were also varied. The studies that were performed up until 1948 were all of a concentrated material with a high cost of concentration and handling; therefore, it was felt that the process was not commercial.

From 1950 to 1953, our attention turned to the reactions involved in working with uranium ores. Uranium ores at that time were receiving considerable attention and government support. It was observed that as the raw uranium ore was irradiated and otherwise processed under proper conditions, fairly large amount of uranium could be recovered. For instance, on May 16, 1958, using a sample that ran 0.29% uranium oxide before irradiation, the assay was 21.9% after. Since the average Utah ore was 0.23% uranium oxide, it was felt that this would be a boon the uranium industry. Recovery after professing and irradiation would vary with ores as much as from 7.03% up to 75% uranium oxide. No silicates were removed. This was not a concentration of the material. In 1955 we proposed that the AEC investigate such a project and see what might be done to "age" uranium ores. After Dr Marvin of the AEC spent several months investigating the sample we supplied, it was reported that no ore of the type we presented existed in the United States except by the process of aging which they admitted we seemed able to do. We proposed that a breeding type reaction could be accomplished by the bombardment of low grade ores with high energy particles or x-rays in the presence of a proper environment. At this time we were unsuccessful in obtaining a contract from the AEC. It was disclosed later that breeding reaction investigations were being conducted by the AEC in Arc, Idaho (*Scientific American*, January 1960). We still feel our method is cheaper and more efficient that the process used at Arco.

The study of uranium oxide, however, paid for itself in that it opened up new ideas in an approach top breeder reactions for other types of mineral bearing ores. In 1958 we altered the uranium breeding reaction process and specifically adapted it to the recovery of gold, silver and platinum ores.

The first step toward a commercial process was the production of the environmental solutions. Solutions made as late as September 1962 were not fully aged until January 1963. Considerable amounts of solutions were tested under subcontract by reliable testing laboratories for quality control, stability, and chemical makeup. This report will not deal with the chemical composition of the test solution. It should be pointed out that solutions manufactured at the present time need only a one-day aging period.

Toward the end of 1961 two problems emerged:

(1) Determination whether the high energy irradiation is entirely dependent upon a high frequency carrier wave, or whether the irradiation equipment can be the typical DC particle accelerator type that is available on the open market.

(2) Attainment of a stable configuration of the "local environment" so that the solution may be manufactured in large quantities over a short period of time. This will enable its production to more than equal the production rate by irradiation of material.

The initial effort in the investigation was to determine whether the present commercial particle accelerators such as High Voltage Engineering, Allis Chalmers, General Electric, Westinghouse, International Harvester and Radiation Dynamics would be usable as an irradiation source. It was determined that a technician would be sent to Massachusetts to perform these tests, using standard "local environment" that had been in storage and had proven successful since 1945. The unit initially picked to do the irradiation was the High Voltage Engineering particle accelerator (Burlington, Mass.) The tests considered 100 ounces of gold as 100% and showed the following % reactions:

(a) 49.3%
(b) 5.9%
(c) 4.3%

Sample (a) gave 57.9 ounces of platinum per ton of sample, All samples showed approximately 230 to 248 ounces of silver per ton. The solution used for sample (a) was not readily producible and consisted of material produced in 1945.

Solutions used in samples (b) and (c) evidently did not respond adequately to the high-speed electrons. These solutions had been tested several times previous to this using our own radiating equipment, giving an average result between 69 and 82% reaction and showing a very high amount of silver at various times. This research also disclosed that over-irradiation gave a deterioration rate and loss of values indicated.

At this point it was decided that further investigation of power plants and particle accelerator tubes should be conducted.

A series of tests were started that would test solutions and then retest solutions after variations were made. It was found that a solution could be varied, if it had aged, and aging of the solution became a problem as chemical reactions continued to take place die to hydration and changes of storage temperature.

Tests were made at Rockford, IL on the Electronized Chemicals Corporation's Particle Accelerator using the principle of the magnetron to deliver power to the accelerator tube. The results indicated that even though a standard solution was obtained that sufficed for our particular power plant needs, the losses were still too great with a particle accelerator of this type. The samples were irradiated at 11.4 Mev and from 1 megarad to 20 megarads. The average % yield was between 8 and 9%. This would indicate that a production rate of 5 tons per day may be obtainable.

The amount of platinum present after irradiation using a standard solution is very low. Using standard test methods and our laboratory particle accelerator, the reactions with solutions of this type have run from 107% to 329%. From 135 to 426 ounces of silver have been present. No platinum was indicated. The lack of platinum would be attributed to (a) the energy level of the irradiating source, (b) the chemical composition of the "local environment", and (c) target.

It is believed this environment furnished particles similar to the cosmic ray reaction on the atmosphere. Research work indicates that the radiation must be composed of both high-speed electrons and x-rays.

The x-ray performs the photodisintegration and the electron furnished both the energy and amperage to the reaction. It is suspected that because the escaping electrons have a certain amount of energy, a certain amount of x-rays will be produced in the material by the electron's reaction (Compton Effect). The ideal reaction, it is indicated, is for the x-rays to be produced at a target located somewhere outside the accelerator tube where losses of energy will be at a minimum.

Recent experiments conducted in August 1963 using a Radiation Dynamics' Linear Particle Accelerator gave very interesting results.

Three samples were prepared. The first sample was divided into two section, the second sample divided into three sections, and the third sample divided into three sections. The first sample contained a reagent grade material, the second sample contained sand from Glen's Ferry, Idaho, and the third sample contained sand from near Rexburg, Idaho. None of the samples contained more than a trace of gold or silver and the first sample contained the reagent grade material carried by Chemical Supply House. Sample #A2 was irradiated using a special target without benefit of "environmental solutions" at 750 kilovolts and 1/2 megarad dose. The result of this test showed 0.12 ounces of gold per ton, and 0.5 ounces of silver per ton.

Sample A3 was irradiated using special target without the benefit of "environmental solution' at 1.5 Mev, 1/2 megarad giving the results of 0.26 ounces of fold per ton and 0.18 ounces of silver per ton. Samples 1A, 2B and 3b were irradiated at 750 kilovolts, 1/2 megarad with special target in the presence of special environment with the following results:

1A contained 17.2 ounces of gold per ton, and 6.1 ounces of silver per ton.
2B contained 48.8 ounces gold, 291.2 ounces silver per ton.
3B contained 20.2 ounces gold, 13.9 ounces silver.

Samples 1B, 2C and 3C were irradiated at 1.5 Mev, 1/2 megard through special target in chemical environment. The reactions were as follows:

1B, 100 ounces gold, 45 ounces silver.
2C, 63.2 ounces gold, 225.4 silver.
3C, 81.92 ounces gold, 44.5 ounces silver.

We feel this performance approximated our reaction and is an indication of what is taking place with our equipment here at the laboratory. Further studies are being performed. Our findings are the results of more than 200 tests that have been conducted within the last three years and the results of many more tests performs and conducted dating back to as early as 1939.

The conclusions reached regarding the reaction are that this reaction is dependent upon the following factors:

(1) The isomers of the isotopes reacted upon must be present in the ore before the ore will react to the reaction.

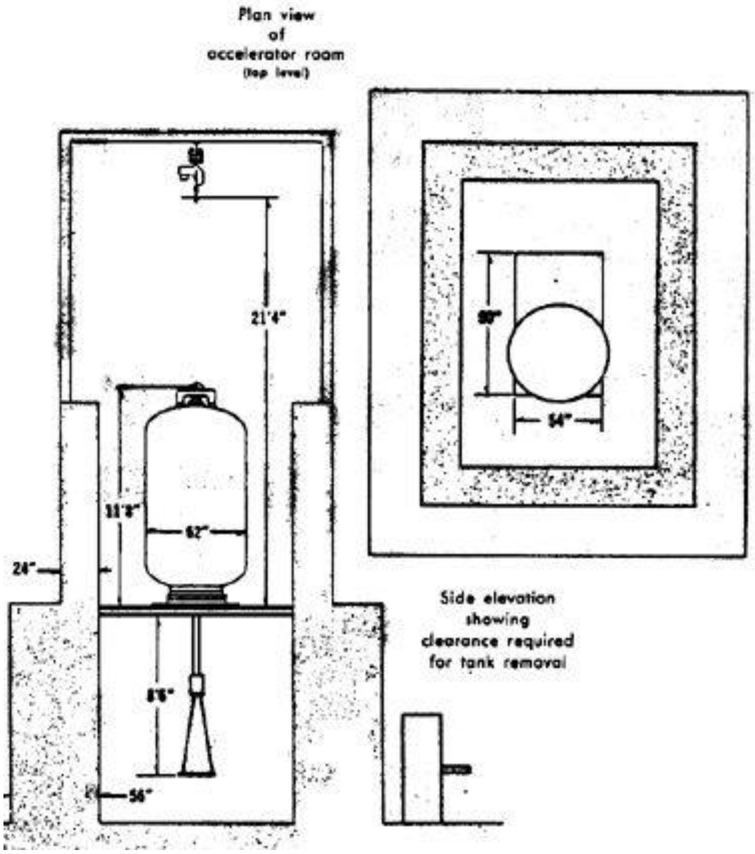
(2) These reactions are dependent upon the type target in order to control the frequency of the quantum energy level.

(3) High energy electrons must be present in the ore as well as x-rays.

(4) The composition of the environmental solution to furnish other particles that are freed by the action of the resonant frequency x-rays and the electrons produced by the particle accelerator.

(5) The reaction is a dose-rate reaction and not dependent upon velocity. The velocity of the original particles will determine depth and time of reaction only.

The possibility of developing a commercial process by bombarding raw ore described above in the presence of a proper environment is feasible. The energy levels involved are not above those that can be easily obtained by present particle accelerator equipment. It is obvious that these energy levels in the proper environment are much lower than had been expected and are lower than had been demonstrated by other researchers. It is no longer a question of whether these reactions will take place, but a question of locating the ores that most readily respond to this type bombardment under the proper environment.



Statistical Analysis of Mineral Recovery Process

[repeats much of the above reports]

The history of the mineral recovery process could be very extensive as it covers a period of Dr Moray's work from 1935 to date. However, just as a brief description, we wish to submit the following:

For years, researchers have claimed that large quantities of the noble metals could be detected in ores that, under our present recovery and assaying procedures, appear to have very little or no noble metal content before handling with elaborate separating or treating systems. We are convinced that these so-called treating or separating systems may have had some basis beyond that of fooling the investigators because of the techniques that they happened to be using. On the other hand, some may not have been reliable in the first place. However, we do not have to remind the reader that chemistry grew out of alchemy. One of the best examples of a successful researcher in this filed was C.W. Nalder of San Francisco, CA who developed a device in the early '40s that obtained from desert sand and lake bottoms sufficient of the nonferrous metals to pay for the operation. This device was operated over a period of time and processed approximately 90 tons of ore per day.

From time to time The Research Institute has been approached by various individuals of work on such a project. In 1940 an organization from southern California brought what was called "Shinly Shale" to The Research Institute and asked us to investigate the possibility of separating mercury from said ore. Indication brought out in our laboratory showed that this ore did contain some mercury which was easily lost without properly handling.

As the Research Institute has always used a high energy approach, it became a matter of pattern to bombard such low grade ores at energy levels as high as 24 Mev and to handle these ores under varying exacting laboratory conditions. Early in 1940 it became apparent that considerable amounts of noble metals could be detected in the ore after bombardment and that the idea had merit.

From 1950 to 1953, our attention turned to the reactions involved in working with uranium ores. Uranium ores at that time were receiving considerable attention and government support. It was observed that as the raw uranium ore was irradiated and otherwise processed under proper conditions, fairly large amount of uranium could be recovered. For instance, on May 16, 1958, using a sample that ran 0.29% uranium oxide before irradiation, the assay was 21.9% after. Since the average Utah ore was 0.23% uranium oxide, it was felt that this would be a boon the uranium industry. Recovery after professing and irradiation would vary with ores as much as from 7.03% up to 75% uranium oxide. No silicates were removed. This was not a concentration of the material. In 1955 we proposed that the AEC investigate such a project and see what might be done to "age" uranium ores. After Dr Marvin of the AEC spent several months investigating the sample we supplied, it was reported that no ore of the type we presented existed in the United States except by the process of aging which they admitted we seemed able to do.

The study of uranium oxide, however, paid for itself in that it opened up new ideas in an approach top breeder reactions for other types of mineral bearing ores. In 1958 we altered the uranium breeding reaction process and specifically adapted it to the recovery of gold, silver and platinum ores.

The first step toward a commercial process was the production of the environmental solutions. Solutions made as late as September 1962 were not fully aged until January 1963. Considerable amounts of solutions were tested under subcontract by reliable testing laboratories for quality control, stability, and chemical makeup. This report will not deal with the chemical composition of the test solution. It should be pointed out that solutions manufactured at the present time need not to be aged.

Toward the end of 1961 two problems emerged:

(1) Determination whether the high energy irradiation is entirely dependent upon a high frequency carrier wave, or whether the irradiation equipment can be the typical DC particle accelerator type that is available on the open market.

(2) Attainment of a stable configuration of the "local environment" so that the solution may be manufactured in large quantities over a short period of time. This will enable its production to more than equal the production rate by irradiation of material.

The initial effort in the investigation was to determine whether the present commercial particle accelerators such as High Voltage Engineering, Allis Chalmers, General Electric, Westinghouse, International Harvester and Radiation Dynamics would be usable as an irradiation source. It was determined that a technician would be sent to Massachusetts to perform these tests, using standard "local environment" that had been in storage and had proven successful since 1945. The unit initially picked to do the irradiation was the High Voltage Engineering particle accelerator (Burlington, Mass.).

Early in 1964 when Mr Tom Rudolph and Mrs Ruth L. Hendricks began to work on the process, the primary problem was to develop a solution environment which could be reproduced consistently and at a cost which would permit commercialization of the process. With little information available, it was done by trial and error.

During this work, a number of different low-grade ores were used along with many solutions. Originally, this complicated the problem but later added to the useful information as we found that a solution which worked very well with one ore would not necessarily give any yield with another ore. This led to the development of several good solutions.

None of these solutions require any aging; that is, they can be used immediately after mixing. They can, however, be stored without adverse effects. All can be produced at a cost of $50 or less per 100 gallons. This is approximately the volume of solution required to process one ton of ore.

The ores we have used fall into three main categories. All contain from trace to a few hundredths of an ounce of gold per ton. Although we have tried higher grade ores, they seem less adaptable to this process. The increase in values is much less than in low grade ores. One type of ore is simply low grade unprocessed gold ore. The second is mill tailings. This type has a number of advantages such as being inexpensive, available in large quantities, and already ground. For these reasons a great deal of work has been done with this type of ore with excellent results. The third variety of ore is natural sand. Although fewer different ores of this type have been tried, they also have usually given good yields.

When it became evident that our results with one particular ore and solution combination were consistently high, it was decided to being a pilot operation with this combination. The irradiation unit which we had been using at our laboratory would process only a small amount of ore per day, but it was felt that production on this unit would teach us a great deal about commercialization of the process.

Since all out sample work had been done in glass and porcelain containers, we began testing various materials to determine what type of handling equipment could be used. To our surprise the reaction was found to be quite sensitive to interference to nearly every other material. Plastics could not be used, nor could stainless steel, or most varieties of rubber or brass. Copper could be used if it was in one continuous piece. Although we do not fully understand this interference, indications are that it is due to electrostatic charge or particle position in the solution.

At this time we set up a small pilot plant in our lab in order to check out several handling systems. Because of the constant experimentation, no great amount of material was ever run through the pilot plant. The final total was about 800 pounds when the pilot plant was adjudged a success and shut down. This pilot plant used production size samples but ran at a slower rate than a production operation would, so that a good indication was given of what yield we could expect in a production operation. The overall average of this plant was 19.2 ounces per ton. However, because the production size samples were quite large for our plant, the standard deviation was quite high.

A total of 9 production runs were made. The first two were 100 pounds of dry ore each; the rest were 200 to 250 pounds of dry ore each. These were run during June-August 1964. The table below gives dates and results. The tie between runs was spent modifying, improving and repairing the handling equipment whenever difficulties arose or changes seemed to be called for.

Date (1964)	Ore Weight	Yield
June 27	100 lb	4.36 - 28.84 oz Au
July 6	200 lb	5.20 - 21.00 oz Au
July 7	200 lb	15.92 - 29.80 oz Au
July 27	200 lb	< 1 oz Au/ton
August 6	200 lb	4.72 - 9.24 oz Au
August 7	250 lb	3.24 - 20.24 oz Au
August 10	250 lb	1 - < 5 oz Au/ton
August 18	250 lb	< 1 oz Au/ton
August 27	250 lb	High Ag (85 - 145 oz Ag/ton)

It was found that 200 pounds of ore could be run in about 7-1/2 hours of continuous operation. Samples were taken periodically during each production run. Variations in assays among different samples from one run can be attributed to differences in sampling technique, experimental changes during the run, and differences in drying temperature, all of which cause marked differences in yield.

Although our pilot plant average was high enough to show commercial feasibility, we wanted to get the standard deviation down to a level so that we could predict with 99% accuracy that our operation would be commercially feasibly. We also felt that it was time to check these slurries on a larger irradiation unit to see if it gave similar results. We decided to conduct these tests in two series, the first to be a statistical test to determine what variables gave significant differences in yield and the second, to determine which settings of these variables gave the best yields. It was felt that if these tests would show a 99% assurance of commercial feasibility, no further tests would be necessary as we would be sure to get even higher yields in production when we had the optimum operating conditions pinpointed.

For these tests we rented time on an electron beam accelerator. In the first series of tests, we tested dose, dose rate, slurry depth, shield material, electron volts setting, shield height, and distance from sample from irradiation head. The shield was a thin sheet of material placed over the sample when irradiating with an electron beam. In main effects, only electron volt setting showed up as significant, with the high voltage setting being better than the low. In addition, several interactions between variables showed up as being significant. An interaction between two variables means that when either variable is changed singly, the results remain unchanged, but when the two variables are varied together, a significant difference results. Statistically speaking, interaction between more than two variables is extremely rare; however, with the number of interactions between two variables which we encountered, I would say there is a good chance that interaction between three variables or perhaps even more may be present. The following interactions seemed to be the significant ones:

(1) Shield height - voltage
(2) Dose rate - voltage
(3) Dose -voltage
(4) Distance of sample from head - shield height
(5) Solution depth - shield material
(6) Slurry depth -voltage

These results all tend to indicate that a higher voltage would give much better results.

In the next series of tests, we set the machine so that the significant interactions would be at their best settings and tested doe and dose rate. This was done in order to get some idea of what production rates could be expected. The second series showed that does and dose rate were probably significant as we were able to show differences at different settings and got a sine curve effect on our graphs which would tend to break down our earlier statistical tests on these two variables as the tests were designed for straight line or exponential variations. With these later tests we were able to find better operating conditions which give better yields. We felt that these conditions might be best evaluated in production as it would be much cheaper and easier then to set up an evolutionary operation testing program while running production and these tests were already enough to prove commercial feasibility.

A total of 56 production size samples and 6 beaker tests were irradiated on the Linac. Using these as a basis of calculation, it was possible to get a fairly accurate figure to indicate what we could expect in a production operation. The 6 beakers were included because they were of a production nature also.

In spite of the fact that these tests were conducted at a wide range of machine settings in our search for optimum conditions, we still averaged 15.16 ounces of gold per ton. Statistical calculations show that we can be 97.5 % certain that even at these conditions our production average would be better than 10.51 ounces of gold per ton. Since in a production operation we would be operating at optimum conditions at all times, the average is almost sure to be higher than this. These calculations show that with a small risk involved, a yield of around 15 ounces of gold per ton can be anticipated. We also found that a dose of 0.16, 0.5, 2.0 and 4.0 megarads gave the peaks on the sine curve for dose. A dose rate of 4 megarads per minute gave the highest peak on the dose rate curve.

Since that time we have irradiated several more samples on the Linac and very few have shown any worthwhile results. Since the earlier statistical results show that there is an extremely small chance that this drop in results could occur without a specific cause, we have not been too concerned about these results.

At this point it was discovered that the process is a wattage-dependent reaction, and as the size of the sample varies, the reaction varies on an inverse lineal level wherein doubling the size of the sample would cut total reaction in half. Consistency became the biggest problem making it mandatory that from 1967 to 1970, extensive research had to be conducted to determine what would be required to give consistency to the process.

Statistical evaluation performed in 1966-67 shows that an ore of no value could be handled to make an ore of value. In the Olsen report on the statistical evaluation, the ore used was taken from the tailings ponds of the United States Smelting and Refining Company. The ore, having no value to begin with, averaged after processing a mean value of 11.79 oz of gold per ton; giving estimates of 95% confidence interval for the mean, we get values of 9.22 and 14.66 oz of gold per ton. This means the ore has increased from approximately $1 a ton to more than $300 a ton in value [1970 values]. Consistency was achieved in 1970 by adding to the process a control resonant chamber which acts to bring all variables into phase.

There remained only one problem, that of consistency. That is, each time an ore was processed, the mean value would be larger than the standard deviation. This was accomplished by using a resonant chamber or, as we have called it, and "[magnetic] undulator", to bring the material into phase with the radiation source, or into a resonant relationship with the radiation source. There are definite peaks at which each ore, that is of value with this process, releases the metals found within it. There are peaks for each metal ion within the ore.

The chart of tests run August 24 1970 to October 12, 1970 establishes consistency and make it possible to build a production facility. Tests run on August 24 were run under slightly separate conditions than the tests of September 17 through October 12 wherein after August 24 there were changes in the power supply. This changed the total wattage delivered to the sample and also a slight change in the curve relationship of sample to the radiation source. Difficulties in obtaining the proper power supply are the results of engineering and not of the process, as the proper power supplies are available on the market.

Samples # 1, 2 ,3 and 4 dated August 24 give a clear picture as they are a conglomerate of several samples run all at the same time, mixed together to as to give an average and then assayed to show the total overall value. For example, sample one consisted of two samples irradiated at the same tie and the same conditions, both weighing 60 grams, giving a total of 120 grams. The samples are very sensitive to the wattage supplied. The function is not linear; minimum wattage required is 200 watt-seconds per gram. Other conditions remained constant throughout the test.

When it becomes desirable to use this process on a new ore, the process has to be adjusted to the characteristics of that ore. The chemical formulas and the resonant energy levels must be established for each ore. To date, a sufficient number of ores have been evaluated to establish that a process can be adapted within reasonable limits.

Metals not otherwise detected are freed for a separation by normal separating processes. This process does not purport to be a separation system in any way in that upon completion of irradiation the samples will have to be delivered to a mill or smelter as per the most expedient means of disposing of the valuable ore.

The status of the project now stands at a point where further research will be of a duplicating nature. Engineering needs must be accomplished to bring this process into commercial production. The chemicals required are available on the open market. Electronic equipment for irradiation and also resonance control equipment are available, provided sufficient capital and lead time are allowed to obtain said equipment. The Research Institute has demonstrated that tailings or low grade ore of no apparent value can be bombarded by high energy particles under ideal conditions, resulting in the freeing of metals not otherwise detectable that can now be separated by a normal separating process.

Ore Tests Run ~

Date (1970)	Oz Au/Ton	Sample	MA
24 Aug	35.51	60 gr	400
24 Aug	33.50	60 gr	400
24 Aug	67.43	30 gr	400
24 Aug	65.56	30 gr	400
17 Sept	18.94	20 gr	300
28 Sept	17.69	20 gr	300
12 Oct	24.85	20 gr	325

Excerpts from an Affadavit by Ruth L. Hendricks

(September 29, 1967)

… The high silver yield of the last day's operation indicated that the radiation source was about to become inoperable for our purposes….

… The samples were prepared in advance, with the usual minute quantity of the control solution being added, as had always been necessary for the reaction…

Risk Analysis [Excerpts]

by Dr L. M. Olsen & Associates
(Management Consultants & Industrial Engineers)
1979

Enclosure #6 is a cash flow for the mineral recovery process. Calculating a plant will take approximately 12 months to complete, we have designated the first year as 18 months (12 months to complete the plant, and 6 months of operation). If we operate the plant for 4,000 hours, total cost of operation the first year will amount to $6,361,444. However, estimating a minimum return within the 95% confidence level, Y1 would give us 9.92 ounces per ton x 6 tons/hour x 4,000 hours equals 238,000 ounces, giving more than a minimum return. The breakeven point would be at 283 hours, giving a return of $6.4 million [1979 prices]; or, if one should calculate the breakeven point for the number of ounces through the years, you would find that we must recover at least 0.727 ounces per ton. We might see a minimum return could be calculated at one ounce per ton... In none of these tests have I calculated what silver or other metals would bring...

Comments by Thomas E. Rudolph

The statistical report on the Research Institute's Recovery of Minerals from Low Grade Ore process by L.M. Olsen and Associates... may be difficult for the layman to understand. This paper explains some elementary statistical theory which may help to clarify the report and presents possible explanations of why the data behaves a it does. Prof. Olsen was consulted strictly in order to evaluate statistically the results obtained from a series of 62 tests conducted at Varian Associates on a rental linear accelerator.

Ordinarily, statistical data follows one of several typical distributions. These distributions start at a low value on the left, gradually climbing to a peak at the central point, and dropping gradually off to zero, or a low value again at the right when yield is plotted against number of tests as shown by the curve drawn in black (Figure 2). When there are a limited number of tests, data is usually grouped into intervals in order to get a good approximation of its distribution, i.e., the number of tests falling between zero and six are the first interval, six to twelve the next interval, etc. Any size interval which gives a good picture of the distribution can be chosen. The intervals are then charted and a smooth curve is drawn through them. If an infinite number of tests were available, the curve would smooth out to the typical curve shown in Figure 2 as the interval chosen could then be very small. Normally, the data is divided into something less than 20 intervals unless an enormous number of test results are available...

The data from these tests at the rental facility, did not fit a typical distribution but followed approximately a negative exponential curve when plotted in the standard way (Figure 1). The largest number of results fell in the first interval with a smaller number of results in each succeeding interval until the seventh where the number of results falls to zero. Then there are the three very high results as explained in Prof. Olsen's report.

It must be pointed out at this point that normally, when statistical tests to determine an estimated mean are conducted, test conditions are held as constant as possible in order that only the variation inherent in the process can be studied. This was not done in this case. These results include the first tests conducted on a Varian particle accelerator and, since each machine appears to affect the yield differently, a wide variety of test conditions were checked to find optimum yield conditions. It would be much better to check a number of samples at constant optimum test conditions and use these to calculate an expected production mean. However, these tests are expensive on a rental facility and an attempt has been made to use only the minimum number necessary. The assumption has been made that the expected yield which could be predicted would be higher if a number of tests at optimum conditions were conducted. Therefore the minimum predicted from thse tests at the rental facility should be an absolute minimum.

This process seems to have a high tendency to either yield a fairly average result or nearly nothing, i.e., if the settings and conditions of the test are in a range favorable to the process, a fair yield is obtained, but if conditions are set up in an unfavorable manner, a yield of near zero is obtained. Unfavorable conditions do not merely drop the yield somewhat as in some processes, but drop the results right to the bottom. A yield of 0.04 or 0.06 is about as low as the results ever drop with the ore used in these tests and this low was hit a few times. Since the testing was conducted at a wide variety of conditions, it was natural to hit some of these unfavorable conditions now and then. The fact that this happened can be witnessed by observing the test results in the first interval (0 to 6). Of the 22 tests falling into this interval, 10 are from 0 to 1 while the other 12 are between 1 and 6. If a separate class of from 0 to 1 could be included, or if these results from 0 to 1 were found not to be present in a series of tests conducted at optimum conditions, it can be seen that the data would follow approximately a typical distribution curve except for the three outliers. The three outliers are also common in this process. Many times during testing of this process, unusually high results have been seen on an individual test. This happens many more times than would be predicted statistically from the averages of the other tests. So far the reason for these unusually high results and the method of reproducing them consistently has not been isolated.

As stated in Prof. Olsen's report, the 95% confidence interval for the mean is from 9.22 to 14.36. This means that the average yield for a production pant has a 95% chance of lying between these two values. The average yield has a 2.5% chance of lying below 9.22 ounces per ton. Therefore, the average yield has a 97.5% chance of lying above 9.22 ounces of gold per ton.

Ignoring the three very high results and spreading the zero results out over the distribution as would be likely to occur in a series of tests at constant optimum conditions, a typical distribution curve would be approached. This projected curve is sketched in Figure 3. It is believed that this projected curve would be approached in a production operation where conditions are constant and enough tests are conducted to allow the curve to stabilize. The negative exponential curve of Figure 1 with the large number of zero and low results is what is expected during startup and while searching for optimum conditions. If the projected curve of Figure 3 is the true curve for this process, which seems quite likely, it would show that a yield of around 10.5 ounces of gold per ton would be the lower limit of the 99% confidence level. No attempt has been made to include the yields of silver in these calculations, but it has been noticed that the silver content in these samples usually runs about 1/3 as many ounces per ton as the gold content, although the variation of this proportion is fairly wide.

Addendae

(Excerpts from *Adept Alchemy* by R. Nelson)

In a telephone interview with Ken Jones (September 1981), John Moray said:

"The environmental material consists of a combination of chemicals whose atomic numbers add up to the atomic number of silver or gold and yield silver and gold upon irradiation [The formulas include arseno- and iron-pyrites in alkaline solution]. Antimony has peculiar properties -- it has floating electrons which come in very handy. It is believed that this environment furnishes particles similar to the cosmic ray reaction on the atmosphere. Research work indicates that the radiation must be composed of both high-speed electrons and x-rays. Consistent results under controlled methods were obtained with the addition of a catalyst (a flux or reduction agent, an environment) combined with bombardment of the material ... by an energy bombardment tube developed for the Research Institute."

The "bombardment tube" may be a preferred embodiment of Dr. T.H. Moray's "Electro-Therapeutic Apparatus" (US Patent #2,460,707) The invention is described as follows in the patent abstract:

"An apparatus for applying radiant energy therapeutically, comprising means for producing high potential, high frequency electricity; a high capacity sparking condensor; and a treatment electrode connected in circuit with the foregoing...

"The invention has been described in the foregoing with sole reference to its use for therapeutic purposes. It should be noted, however, that inorganic matter may also be treated to advantage pursuant to the methods and with the apparatus... It has been found that metals, for example, lead, have changed physical properties after treatment in accordance with the above..."

T.R. Dolph published an article about the Moray process (*Fate*, February 1976), in which he stated:

"Dr. Moray engaged my father-in-law, attorney Victor G. Sagers, Midvale, Utah, to represent him in offering the device to the US Government... Transmutation of metals (yes, turning lead into gold) was demonstrated several times; the government supplied the lead and kept the gold."

John Moray commented on this in a letter to Ken Jones (18 January 1982):

"The article by T.R. Dolph, Garland, TX, is one of those articles written by a crackpot that has in fact mixed together a number of unrelated facts. There is no such device as described in *Fate* magazine... The bombardment tube does exist. However, this has nothing to do with the recovery of minerals from low grade ore. The bombardment tube is a part of the therapy device.

"The story of gold and lead supplied by the US Government is a complete fabrication. My father and I always detested liars, and this man Dolph is a compulsive liar. His father-in-law, Vick Sagers, would never have said anything similar to what this man has said."

John Moray added this note in a later letter to Ken Jones (11 February 1982):

"The bombardment tube is electrotherapy and does not apply to the mining or mineral recovery process, regardless of how you interpret the patent.

"The patent application is speaking of a "method" and has to do with an individual trained in the art of that "method" which is all the law requires, and therefore, changing the physical properties of lead, i.e., making it possible to be alloyed with copper or developing a lead semi-conductor has nothing to do with the mineral process again."

US Patent # 2,460,707

(Cl. 128-421) ~ February 1, 1949

Electrotherapeutic Apparatus

Thomas H. Moray

This invention relates to electrotherapeutic apparatus, and to methods of applying electrical, radioactive, and other radiant phenomena therapeutically.

The invention is primarily concerned with the use of high potential, high frequency electricity though not necessarily limited thereto, in conjunction with radioactive and other types of electronic and radiation phenomena, for therapeutic purposes.

Among the objects of the invention are the following:

(1) To render highly effective, from a therapeutic standpoint, radioactive and other types of electronic and radiation phenomena, and likewise, to render highly effective, from a therapeutic standpoint, high potential, high frequency electricity.

(2) To augment the therapeutic effect of radioactive and other types of electronic and radiation phenomena by the conjoint use of high potential, high frequency electricity, and conversely, to augment the therapeutic effect of high frequency, high potential electricity by the conjoint use of radioactive and other types of electronic and radiation phenomena.

(3) To accomplish the above without danger of burning or otherwise harming the patient.

(4) To provide apparatus for accomplishing the above, which is relatively simple in construction and operation and relatively inexpensive to produce and operate.

(5) To provide novel electronic and radioactive devices especially adapted for use in conjunction with high potential, high frequency electrical therapy.

I have found that, be enveloping a patient in a high potential, high frequency field in such a manner that no closed circuit is completed through his body, radioactive and other electronic and radiation phenomena can be used therapeutically with considerably greater effectiveness than if used alone. The exact reason for this is not known, nor is it known definitely which, the electric field or the radioactive phenomena, acts upon the other to produce the advantageous results. It is thought, however, that the electric field permeating the body of the patient as it does attracts the radioactive emanations or radiations and enables them to penetrate considerably deeper into the tissues and vital organs of the patient than would otherwise be the case. In any event, remarkable therapeutic results have been achieved by use of the invention in the treatment of malignant tumors. Arthritis, sinus infections, and various other diseased conditions.

The invention contemplates the use, in therapeutics, of high potential, high frequency electricity to produce diversified forms of radiant energy, such forms being those which have been found best suited, individually, to benefit various human ailments. In accomplishing this purpose, several special discharge tubes have been developed to serve as treatment electrodes, by means of which correspondingly different curative results are obtained. Throughout the practice of the invention a prime consideration is that only one terminal of any particular circuit shall be contact with the patient's body at one time, so there will be no flow of current through a closed circuit of which the patient's body is a part. Such a terminal, too, is usually non-heat producing, so there is no danger of burning. In cases where there is a tendency for a tube to produce x-rays or other injurious rays, these are filtered out.

In the accompanying drawings, which illustrate several embodiments of apparatus preferred for carrying the method of the invention into practice:

Figure 1 represents a wiring diagram of a preferred embodiment of apparatus for carrying out the method of the invention in general therapeutic work, several independent treatment stations being provided;

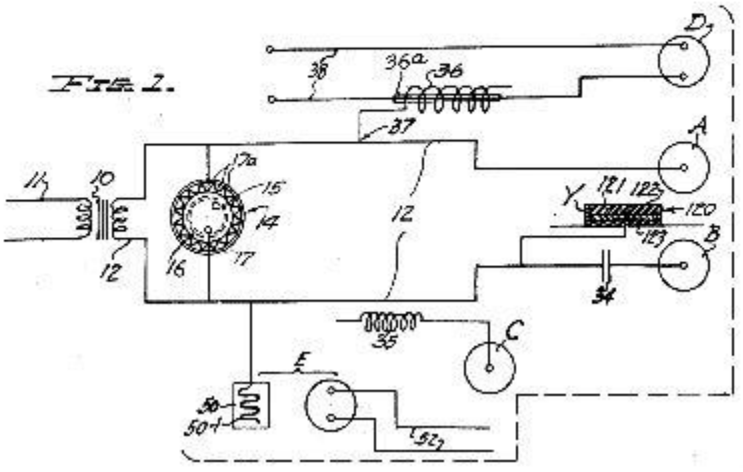


FIG. 1.

Figure 2 , a top plan view of the novel corona regulator of Figure 1, employed in the circuit to control and adjust the current and as a governor to safeguard the transformer;

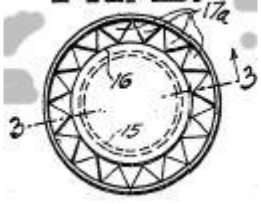


FIG. 2.

Figure 3, a vertical section taken on the line 3-3 of Figure 2;

FIG. 3.

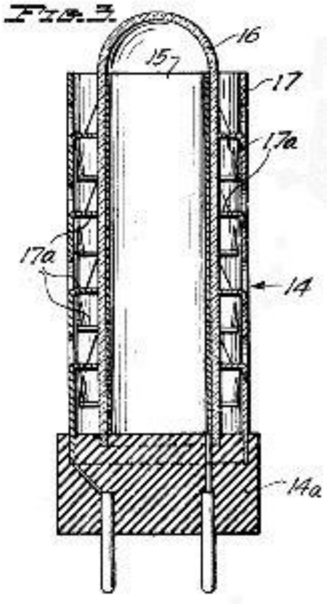


Figure 4, a vertical section taken centrally through one novel type of discharge tube used as a treatment electrode in the apparatus of Figure 1;

FIG. 4.

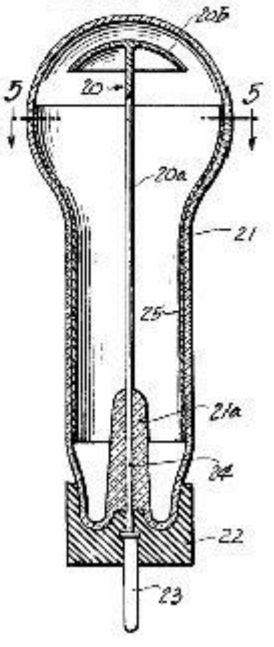


Figure 5, a horizontal section taken on the line 5-5 of Figure 4;

FIG. 5.

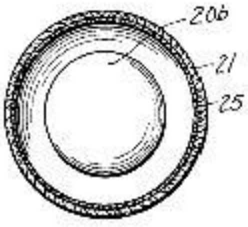


Figure 6, a vertical section taken centrally through another novel type of discharge tube used as a treatment electrode in the apparatus of Figure 1;

FIG. 6.

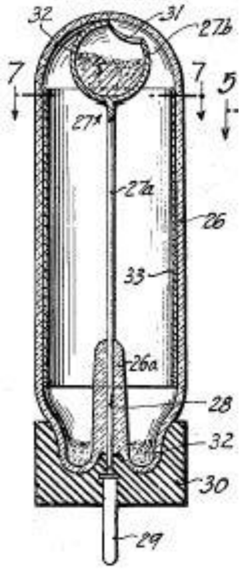


Figure 7, a horizontal section taken on the line 7-7 of Figure 6;

FIG. 7.

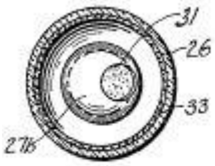


Figure 8, a vertical section taken centrally through a novel discharge tube used as a treating device in the apparatus of Figure 1;

Fig. 8.

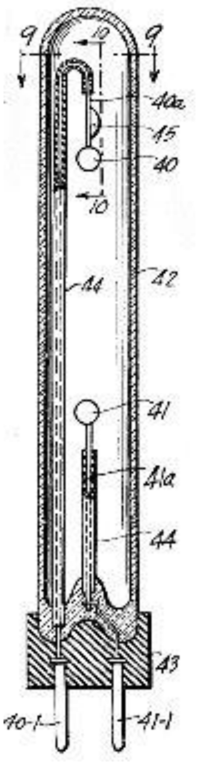


Figure 9, a horizontal section taken on the line 9-9 of Figure 8;

Fig. 9.

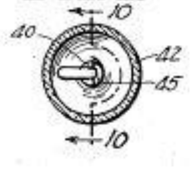


Figure 10, a fragmentary vertical section taken on the line 10-10 of Figure 9;

Fig. 10.

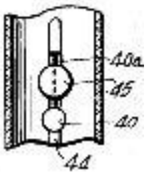


Figure 11. a fragmentary view in vertical section, and drawn to a reduced scale, of a tub bath capable of use as a treatment station in the apparatus of Figure 1;

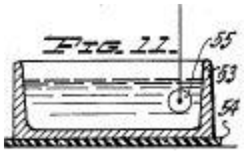


Fig. 11.

Figure 12, a view similar to that of Figure 11, but showing a shower or vapor bath arrangement for the same purpose;

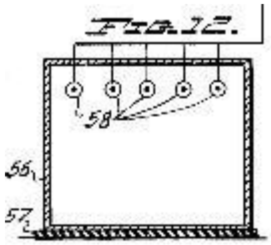


Fig. 12.

Figure 13, a wiring diagram similar to that illustrated in Figure 1, but fragmentary in nature, and of a somewhat different embodiment of apparatus;

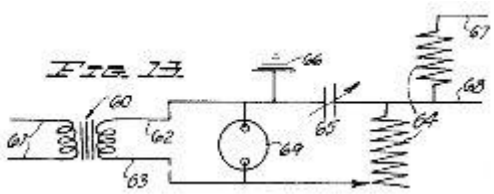


Fig. 13.

Figure 14, an elevation, partly in central vertical section, of a novel tube use din the apparatus of Figure 13 in place of the corona regulator of Figures 2 and 3;

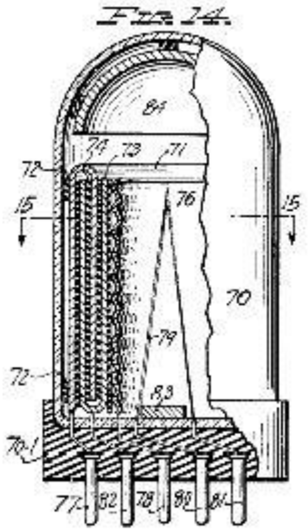


Fig. 14.

Figure 15, a top plan view, partly in horizontal section on the line 15-15 of Figure 14, of the tube of Figure 14;

Fig. 15.

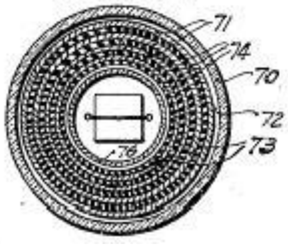


Figure 16, a vertical section of another novel tube which may be used in place of the tube of Figures 14 and 15;

Fig. 16.

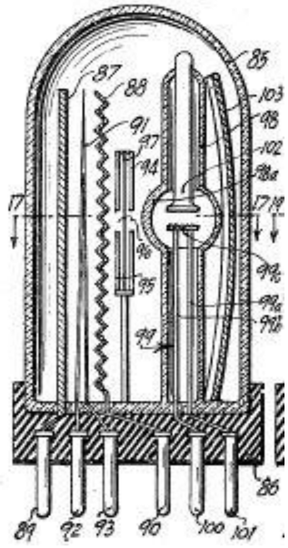


Figure 17, a vertical section taken on the line 17-17 of Figure 16;

Fig. 17.

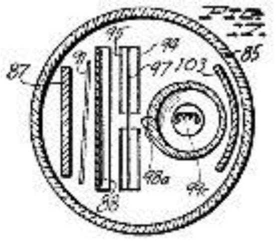


Figure 18, a top plan view of still another novel tube which may be used in place of the tubes of Figures 14, 15, 16 and 17; and

Fig. 18.

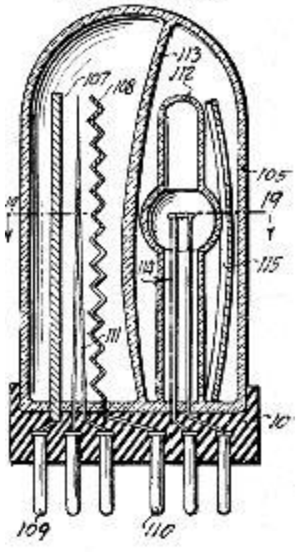
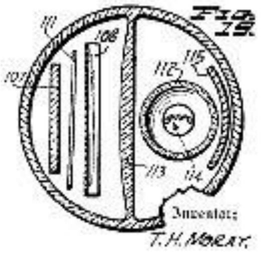


Figure 19, a vertical section taken on the line 19-19 of Figure 18.

Fig. 19.



In accordance with the invention, provision is made for enveloping the patient in a high potential and, in certain instances, a high frequency electric field, and for applying to the patient, while so enveloped in the electric field, radiations and emanations having therapeutic value.

The apparatus of Figure 1 is capable of administering specific kinds of treatment, pursuant to the invention, at the several treatment stations provided. The treatment stations are indicated A, B, C, D, and E, respectively.

For supplying the high potential electric field, a suitable transformer is employed. This may be of any type capable of delivering high potential electricity, say from 10,000 to 30,000 volts. It is preferred, however, to utilize a conventional double magnetic circuit type of transformer, indicated at 10 in Figure 1, having adjustable laminated magnetic shunts (not shown), the transformer being connected across an ordinary power line 11 charged with the customary 115 volts. The output lines 12 from this transformer advantageously extend to the treatment stations A and B, respectively. The first secondary of the transformer 10 is preferably direct connected to the second secondary thereof. It is noted that this high potential electricity may be applied, without causing injury, direct to a patient who is not grounded. However, in order to safeguard the transformer 10 from damage by sparking across its output terminals, and to render the high potential electricity more suitable for therapeutic purposes, which is believed to include the automatic changing of frequency to an extent which depends upon the electrical characteristics of the patient's body, a governor or control device 14 is shunted across the leads 12.

This governor or control device 14 is a sparking condenser of high capacity embodying a multitude of spark gaps. A preferred embodiment of this governor or control device 14 is illustrated in detail in Figures 2 and 3.

As illustrated, the device comprises a cylindrical, electrically conductive plate 16 surrounded by a cylindrical dielectric 16. An outer cylindrical and electrically conductive elements 17 surrounds the dielectric 16 exteriorly. It is provided with a multitude (for example, 250) of inwardly extending prongs 17a, which are advantageously formed by stamping out and inturning triangular portions of the electrically conductive element 17. The internal plate 15 preferably contacts the interior surface of the dielectric 16, but in any event should lie closely adjacent thereto. Likewise, the tips of the prongs 17a preferably contact the outer surface of the dielectric. The several elements are advantageously mounted in a plug-in base 14a, which is adapted to mate with a suitable receiving socket (not shown) carrying the required electrical connections. He internal plate 15 connects with one of the electric lines 12, while the external element 17 connects with the other electric line 12, as shown diagrammatically in Figure 1.

It is preferable that the dielectric 16 be in the form of a closed tube or envelope, as shown, and be exhausted to vacuum condition. The multitude of sparking prongs 17a produce a brush discharge.

Where the dielectric 16 is not a closed tube or envelope, it is preferred that it be of quartz.

The treatment station A is a discharge tube of a novel type, exemplified by the tubes illustrated in detail in Figures 4, 5, 6, and 7. Either tube is plugged into the circuit of Figure 1 at a suitably provided single-terminal outlet. High potential electricity is, therefore, fed directly into the tube, which serves as an electrode. The tube also embodies radioactive material, which supplies radioactive emanations to the patient simultaneously with the electrical discharge.

As illustrated in Figures 4 and 5 the tube or electrode ay comprise an electrically conductive discharge element 20, having a support stem 20a and a major discharge cap or head 20b, which is preferably in the form of a thin, convex-concave plate. The head 20b may be spot welded to the end of the stem 20a.

The discharge element 20 is enclosed within a tube 21 of dielectric material, preferably glass, the stem 20a being fixed in the fused tongue portion 21a of the tube. The tube or shell 21 is fitted into an insulating base 22, provided with a single plug-in terminal 23, and an electrical connector 24 extends from the terminal 23 to the stem 20a.

The inside surfaces of the side walls of the tube or shell 21 are coated with a radioactive material, as at 25. The coating is conveniently made from uranium salts or powdered carnotite or other radioactive ore. The ends of the tube or shell are left uncoated.

Air is evacuated from the tube 21, and a small quantity of mercury introduced. The mercury is preferably triple-distilled to insure great purity. It is preferred that argon or like inert gas be also introduced.

Since the tube just described is plugged into the circuit of Figure 1, the discharge element or cathode 20 is charged with high potential electricity, and in its capacity of a treatment station in the apparatus of Figure 1, serves as an electrode to similarly charge the patient. The patient is insulated from the ground, and the tube is applied directly to the afflicted part of his body, preferably in close contact with the body.

Because of the construction of the tube, radiation of a radioactive nature is also directed against the patient through the uncoated top end of the tube. This radiation has been found to differ somewhat from the radioactive emanations discharging from the side walls of the tube, and is thought to comprise rays lying close to x-rays on the radiation spectrum. These rays appear to have a definite healing value, and lack the injurious nature of x-rays. Where a predominantly radioactive emanation treatment is desired, the side walls of the tube are placed against the body of the patient.

Best results are obtained when the discharge elements or cathode 20 is made of an alloy metal compounded from copper, lead, sulfur, and if desired, aluminum. The relative percentages of the several ingredients may vary considerably, but a satisfactory mixture comprises 5% copper, 55% lead, 30% sulfur, and 10% aluminum. Should aluminum not be used, the difference may be made up by additional copper.

In preparing the alloy, the copper and aluminum are heated to a molten state, after which the sulfur is added while stirring the mixture. After cooling, the mass is again melted, and the lead, in a molten state, is mixed with it, the molten mass being thoroughly stirred. This new mass is then cooled, being later reheated, and while hot, roiled to make it ductile so it can be shaped into the desired forms.

The discharge tube or electrode of Figures 6 and 7 is similar to that of Figures 4 and 5, having an enclosing tube or shell 26 which is evacuated. A cathode discharge element 27 is positioned within the shell, being fixed in the tongue portion 26a. A conductor 28 connects the stem 27a of the element 27 with a plug-in terminal 29, which extends outwardly of the base 30. The cap or head 27b of the element 27 differs from the cap or head of the electrode of Figures 4 and 5, in that it is spherical in form and hollow. It has an opening 31 formed at its top, contiguous with the top inside surface of the tube 26. A quantity 32 of radioactive material, which may be the same as used for the coating 25 of the electrode of Figures 4 and 5, is introduced into the tube or shell 26, along with a relatively small quantity of mercury, before the tube is sealed tight. Such material is preferably powdered or granulated, and is shaken into the hollow of the head 27b through the opening 31 before any given treatment is commenced. The mercury is provided primarily as a getter, and does no harm if shaken into the head 27b along with the radioactive substance. The mercury also tends to produce a vapor in the tube, which aids in the operation thereof. As in the case of the electrode tube of Figures 4 and 5, this tube may have a radioactive coating 33 covering the inner surfaces of its side walls.

The treatment station B of Figure 1 differs from the treatment station A only in the fact that a condenser 34 is interposed in the electric supply line 12.

The treatment station C of Figure 1 differs from the stations A and B only in the fact that the high potential electricity is supplied from the supply line 12 through an inductance 35.

The treatment station D utilizes a germicidal discharge tube, a preferred form of which is illustrated in detail in Figures 8, 9, and 10. The high potential electricity is taken by induction from the particular supply line 12 concerned. For this purpose, an induction coil 36 is provided, tapping the line 12 at 37. A pair of leads 38 from an ordinary 115 volt supply source extend to a plug-in socket connection for the germicidal tube, one of the leads passing through a glass tube 36a in Figure 1, which is disposed within and extends along the length of the induction coil 36. Thus, high potential electricity is impressed, by induction, upon the ordinary current flowing through the particular lead 38 concerned.

The germicidal discharge tube of Figures 8, 9, and 10 has a pair of discharge terminals 40 and 41, respectively, positioned in an evacuated tube or envelope 42, and electrically connected with plug-in terminals 40-l and 41-l, respectively, by means of stems 40a and 41a, respectively. The tube or envelope 42 and plug-in terminals are mounted in a conventional base 43. It is preferred that insulating material 44, such as a ceramic sleeve, covers the major portions of the stems 40a and 41a. A piece of lithium metal 45, see particularly Figure 10, is advantageously secured to the stem 40a adjacent the discharge terminal 40 to act as a getter. It may, however, be placed at any other convenient location in the tube. It is preferred that the discharge terminals 40 and 41 be formed of the special alloy previously described. Argon or other suitable inert gas is preferably injected into the tube or envelope 42, as is also a small quantity of mercury. The mercury, by vaporizing, aids electrical arcing between the discharge terminals. As will be noted, the high potential electricity induced in the one lead 38 will manifest at the upper discharge terminal 40, and will charge the patient simultaneously with the discharge into his body of germicidal rays from the tube.

The treatment station E embodies the tube of Figures 8, 9, and 10, as described above, but impresses the high potential electricity directly on the patient instead of passing it first through the tube. For this purpose, a discharge device 50, in the form of a soft, flexible pad in which a coil 50-1 is embedded, taps one of the high potential electric lines 12. This pad 50 is wrapped around the patient's body adjacent the afflicted portion thereof, thus charging the patient. Any other high potential electricity may be used in place of the pad 50. The germicidal tube has its terminals 40-1 and 41-1 plugged into a suitable plug-in socket connected to leads 52 which extend to an ordinary 115 volt source of supply. The high potential electricity with which the patient is charged is induced into the germicidal tube, thereby further activating the discharge therefrom. A certain beneficial discharge from this type of germicidal tube will be had by induced activation alone, it being unnecessary, in such instances, to plug the tube into the 115 volt line.

Other types of germicidal and discharge tubes may be sued in place of the tube of Figures 8, 9, and 10, as for instance the well known infrared and ultraviolet lamps, to produce results surpassing those ordinarily attained by the use of such lamps apart from the apparatus of the invention.

It should be remembered that the patient is insulated from the ground while being treated at any of the treatment stations of the invention.

Figures 1 and 12 show how a patient is treated pursuant to the invention, while immersed in an electrically conductive fluid bath. In Figure 11, a bath tub 53 is insulated from the ground by a layer of insulation 54. A treatment electrode of the type shown in any of the figure groups 4, 5, 6, 7, 8, 9, and 10 is positioned to charge the fluid of the bath with high potential electricity, as well as to discharge healing radiations and emanations into the patient. The particular electrode illustrated is diagrammatic in form and is designated 55. It may be connected into the circuit of Figure 1 as shown at any of the treatment stations A, B, C, and D. In Figure 12, a shower or vapor stall 56 is insulated from the ground by a layer of insulation 57. A plurality of treatment electrodes are designated 58. These correspond to the treatment electrode 55 of Figure 11. A water spray or vapor, such as steam, may be admitted to the stall 56 in any well known manner (not shown), thus enveloping the patient during treatment.

Another embodiment of apparatus, pursuant to the invention, is illustrated diagrammatically by the wiring diagram of Figure 13. While no treatment stations are shown, those provided are identical with the several treatment stations designated A, B, C, D, and E I Figure 1. The distinction in this embodiment of apparatus resides in the fact that a special generator of high frequency electricity is provided in the system.

A transformer 60 has its input terminals connected across an ordinary 115 volt electric line 61. Electrical conductors 62 and 63 lead from the respective output terminals of the transformer to a high frequency generator of the Oudin coil type, indicated generally at 64, a variable condenser 65 being interposed in the line 62, and the circuit being grounded at 66. Output conductors 67 and 68, leading from the high frequency generator 64, provide connection for the several treatment stations in the same manner as illustrated in Figure 1.

The transformer 60 may be any ordinary high voltage type. A governor or control device 69 is shunted across the conductors 62 and 63.

In the illustrated instance, the governor or control device 69 preferably takes the form of a vacuum tube, having the constructi9on shown by Figures 14, 15, 16, 17, 18 or 19. These tubes all possess high capacity and include elements effecting a brush discharge. They serve as does the device 14 of Figures 2 and 3.

The tube of Figures 14 and 15 embodies an outer shell or envelope 70 of insulating material such as glass, a plastic, or fiber coated with shellac. Inside the shell 70 is a bi-cylindrical element 71 formed of electrically conductive material. Separating element 71 from the enclosing shell 70 are spacers 72 made of rubber, bakelite, or other insulating material. Inter-fitting with the element 71 is a second electrically conductive, bi-cylindrical element 73, the two elements being separated by a dielectric 74. Inwardly of the element 73, and separated therefrom by a dielectric 75, is a corrugated, cylindrical element 76. The shell or envelope 70 is secured in an insulating base 70-

1, provided with plug-in terminals. One of the terminals, designated 77, is electrically connected with the element 71, while another, designated 78, is electrically connected with the corrugated element 76. These two terminals connect with the conductors 62 and 63, as illustrated in Figure 13, and the brush discharge takes place at element 76.

Under certain circumstances, it is desirable that the outer shell 70 be made of quartz glass, and that a filament 79 be provided, the filament being heated by connection through plug-in terminals 80 and 81 with a source of low voltage heating current (not shown). Plug-in terminal 82, which is electrically connected with element 73, may be used instead of or in connection with the terminal 77, since element 73 acts in a manner similar to element 71. A getter 83 of suitable material, and an insulating an reflecting shield 84 may be provided, as shown. While the tube may have either a high or a low vacuum condition, or may be filled with an inert gas, I have also found it advantageous to fill the tube with a moist vapor. The tube acts as an oscillator for electric currents, and has an enormous capacity, a capacity many times that of a condenser of approximately equal size.

The tube of Figures 16 and 17 comprises an outer shell or envelope 85 which may be made of metal, glass, or fused quartz. This shell is mounted in an insulating base 86. Inside the shell 85 is a metal plate 87, and spaced apart therefrom, a corrugated metal plate 88. A plug-in terminal 89, which extends from the base, is electrically connected with the corrugated plate 88. These terminals are adapted to connect, through a suitable socket, with the electrical conductors 62 and 63 of Figure 13.

Under certain circumstances of use, it is desirable to have other elements in the tube. These are provided, and may be utilized or not as occasion warrants. A filament 91 is disposed between the plates 87 an 88. It is electrically connected with the two plug-in terminals 92 and 93, which are adapted to be connected to a source of low voltage heating current (not shown). A slit screen, comprising shields 94 and 95, with apertures 96 extending therethrough, is disposed adjacent that side of corrugated plate 88 which is remote from plate 87. The apertures 96 are in alignment with each other, and the shields 94 and 95 are made of lead or other material capable of screening off x-rays. Between shields 94 and 95 is a sheet 97 of material which is readily permeable to x-rays. Within the shell 85 there is also mounted a shell or envelope 98 of glass, quartz glass, or similar material, having a portion 98a which is ground like a lens and directed toward the slit screen. This shell 98 really constitutes a tube within a tube. A filament or cathode 99, comprising electrically conductive legs 99a and 99b and an electron-emitting portion 99c, is disposed within the shell 98, plug-in terminals 100 and 101 being electrically connected to the respective legs 99a and 99b. A bombardment element 102 is disposed within the shell 98 opposite the portion 99c of cathode 99. Within the shell 85, but outside the shell 98, is a reflector 103 directed toward the slit screen.

The tube of Figures 18 and 19 is essentially the same as the tube of Figures 16 and 17, being equipped with a shell or envelope 105, a base 106, a plate 107, and a corrugated plate 108, the two plates being connected to plug-in terminals 109 and 110 respectively, which are adapted to connect electrically with the conductors 62 and 63 of Figure 13. There is a filament 111 and an inner shell or envelope 112, but no slit screen. Instead of a lens portion being provided on the inner shell 112, a partition 113 of lens formation is disposed between the inner shell and the corrugated plate 108. It is fused to the walls of the outer shell 105. Within the inner shell 112 is a filament or cathode 114 which corresponds to the similar element 99 of the tube of Figures 16 and 17. A reflector 115 is directed toward the lens partition 113.

Reverting now to Figure 1, there is another advantageous way of treating a patient pursuant to the invention. As shown at Y, a foot pedestal 120 may be provided for making the patient a part of the condenser. The pedestal comprises an electrically conductive plate element or electrode 121, connected electrically with one of the high potential lines 12, and covered by an insulating platform 122 upon which the patient rests his feet while being treated at any of the previously described treatment stations A, B, C, D, or E. The electrode 121 and insulating platform 122 are conveniently mounted in a frame 123, which insulates the plate from the ground. The insulating platform 122 is made of a high quality insulating material such as first grade hard rubber. In certain instances it is desirable that the device be made in other than foot-pedestal form. For instance, it may be of cylindrical formation for use in a bed against any part of the patient's body.

If desired, the patient may be charged with the high potential electricity by direct contact with a metal or electrically conductive electrode in place of the pad 50 or treatment station E, or of the tube electrodes.

The invention has been described in the foregoing with sole reference to its use for therapeutic purposes. It should be noted, however, that inorganic matter may also be treated to advantage pursuant to the method and with the apparatus of the invention. It has been found that metals, for example lead, have changed physical properties after treatment in accordance with the above. In instances where the invention is not being used therapeutically, it is not always necessary to insulate the subject from the ground.

Whereas this invention is here illustrated and described with respect to particular specific embodiments thereof, it is to be understood that various changes may be made in such specific embodiments and various other embodiments may be utilized by those skilled in the art without departing from the spirit and generic scope of the invention as set forth herein and in the claims which here follow.

Having fully described my invention, what I claim is: [Claims not included here]

BEYOND THE LIGHT-RAYS

Explanations of the Oscillations of Radiant Energy

by

Thomas. H. Moray

In writing this very short account of the oscillating theory of the Moray "Radiant Energy" discoveries, one can only touch the high spots as many large books would have to be written to even in a small way cover the subject.

All who may read this may not understand me, as I may fail to explain myself as fully as I might desire. There have been truly great men who were unable to express themselves so that men of their time understood their inner meaning. Franklin, Faraday, Cavendish and others gave to the world, their ideas in a form unintelligible to many learned ones of their day, yet their theories have since become known facts. It is hard to rid ourselves of inherited ideas which so completely, although perhaps unconsciously control our line of thought. Another difficulty which has hindered man in forming a true picture of the objective world is that mixed blessing — egotism. In early centuries he could not escape from the false assumption of his own preeminent importance, and these same shackles are still prejudicing the observations of most persons.

In reference to electrons, protons, and ions: It is my theory in using these terms that they are portions of ether, that by some unknown means have become dissociated here and there and become electrically charged, and these innumerable infinitesimal particles of electrified ether constitute (by the forces they exert and the disturbances they originate) the substratum of what our senses term as matter.

Matter is susceptible to motion. Ether is susceptible to stress. All energy appertains either to matter or ether, and continually passes from one to the other, thus producing kinetic energy. There at its very foundation matter consists of electrical charges which governs the very motion of celestial bodies.

There are ample writings acknowledging that there is unlimited energy in the Universe but to say one is able to tap this supply is another matter. If I tell you there is water, good cold water, in a glass on your table, but you cannot drink it for a million years, what would you think? You know how to get the water out of a glass. Well, it is as easy to tap this energy now out in space as it will be a million years from now. If it can be done then, it can be done now. An electric generator pumps it out of the great store house. Why not syphon it?

For me to go into a technical account of how to syphon, would mean the writing of volumes. The whole thing might be said in the few words of Nikola Tesla: "Throughout space there is energy. Is this energy static or kinetic? If static our hopes are in vain: if kinetic and this we know it is for certain, then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature."

This I have been able to do through the use of certain oscillators that I have made and of which doctors of science have said are the most powerful devices known to science today. With the use of these oscillators and the oscillating effect of condensers which I have sometimes explained in the following way to those who are not acquainted with the back-rush effect of condensers, and which may serve to make my point now. When an elastic substance is subjected to strain and then set free, one of two things happens. The substance may slowly recover from the strain and gradually attain its natural state, or the elastic recoil may carry it past its position of equilibrium and cause it to execute a series of oscillations. Something of the same sort may also occur when an electrified condenser is discharged. In ordinary language there may be a continous flow of electricity in one direction until the discharge is completed, or if proper use of the condensers are made an oscillating discharge may occur. That is, the first flow may be succeeded by a back-rush, as if the first discharge had over run itself and something like a recoil set in. The condensers thus become more or less charged again in the opposite sense, and a second discharge occurs accompanied by a second back-rush, the oscillations going on until the energy is either radiated or used up in the heating of the conductors. And if your device will oscillate in harmony with the oscillations of the Universe, or in other words, if the device is capable to synchronization with the vibrations of that energy through space then the oscillations will go on forever. No one can call such an arrangement perpetual motion any more than one can call the motion of the earth perpetual motion. My device oscillates because of the oscillations of the Universe.

For those who do not happen to agree with me on the back-rush effect of condensers I will go into the matter in detail later in this booklet, although in so doing will repeat some of the matter given here. I cannot give a technical account of my device without disclosing too much, but it has been pronounced as scientifically, electrically and mechanically sound and correct by noted men of science, and the device will do all that has been claimed. I can use it on any home with the regular system of wiring. No change of wiring being necessary.

It might not be out of place to now give a few notes taken from my diary of the year 1918, but first I will add that in explaining this theory to a well known and noted American scientist, he said, "You go in your theory back of the law of gravitation."

We may readily take it for granted that a perpetual light, like perpetual motion, is an impossibility. I say that because I do not believe in perpetual light or motion, which, in a sense, is one and the same thing as getting something for nothing.

In this day and age it is not well to say anything is impossible, but getting something for nothing goes beyond my conception of thought. What I have done in my work has been and perhaps rightfully called "radical." Nevertheless, of the great number of learned men who have seen and heard of my work, not one has been able to disprove my claims, theories or discoveries. Among those in question have been some of America's foremost in science, although they have spent hours, even days on my theory and claims. Hence this further explanation of the Moray theory, on which Moray has spent his time from boyhood.

Extracts from the notes follow, although they may in a way repeat what has already been given, but are repeated in order not to break the line of thought.

I fully realize that whatever the difficulties in discovering new truths, there are still greater difficulties in getting them recognized, for as Mark Twain said, "it takes twenty years to get a new idea fixed in the human mind," and I should be armed with scant philosophy if I remained for long surprised at the attacks of some, or the exasperation of a certain number of worthy people, and at the silence of the greater number of scholars, who have heard of my experiments.

The theories herein contained are not new in the main, nor are they contrary to ideas that science has accepted today. They are, however, original with me in their practical adoption, and when 1 first advanced them years ago they were "killed," as it were, by those who heard them before they got very far. Be that as it may, I have taken energy from space and found a means of using it. Heat, light, etc., are not things in themselves, but sensations or effects produced by this mysterious energy directly or indirectly.

Electricity is vibrations of radiation. Where ether (or if you do not like that name "ether" call it what you will) is quiescent, we see nothing. Light causes vibrations of this "ether" and it is these vibrations which cause our eyes to detect. All substances are really combinations of one primordial substance, i. e., electricity, or, in other words, electricity is specifically modified ether. Electrons in motion go to constitute an electric current. Ether waves in motion go to constitute an electric current. What electricity is to matter, so is electric force to common mechanical force, and electrical inertia to common inertia — I mean the ratio of force to acceleration. Perhaps electric inertia might be defined as the ratio of electric motive force to the acceleration of electric displacement.

Could it be that ionic charges in a concentrated and an individual form are performing vibratory excursions, propelled by some great generator out there in space, this great generator being the reservoir of colossal energy, sending out vibrations of electrical energy in every direction? These vibrations being picked up by another planet or star, or call it what you will. We will call it "B," referring to the great generator as "A." "B" in turn acting as both a receiver and retransmitter of these rays of energy to another body, star or planet, which we will call "C." This "C" we will refer to as the distribution point to other worlds, suns and stars of this Universe or group to which our world belongs, it being this energy generated from "A," directed to "C" by "B" that gives energy to our sun and makes our own earth rotate and move in its orbit with other bodies of our group.

The suns, in and of themselves, have no power or energy, being nothing more than what the electrodes are to the arc lamp without the power from the generator. These waves of energy coming from "A" I have proven have a regular beat note of time, coming and going as the waves of the sea, but in a very definite mathematical order of time, coming to the earth from every direction, stronger in the day time than at night, but always coming with a regular beat note that might be referred to as the Father of Time, the Sire of Gravitation.

This energy has a definite elastic rigidity and density, which is subject to displacement and strains. When the strain is removed, this medium will spring back to its old position and beyond, surging back and forth as the waves of the sea, and will continue to oscillate until the original pressure is used up. If the internal impedence is too great, there will be no oscillations, but it will merely slide back in a dead beat to its unrestrained state. By cutting down the resistance to the minimum and by synchronous actions of a device with the actions of the Great Generator of the Universe, recovery will be quicker and quicker until inertia will assert itself and lengthen out the time of final recovery by carrying the recoil beyond the natural oscillation and thus prolonging the vibrations by oscillation. When the recovery is distinctly oscillatory and harmonics set in the oscillations will go on forever because of the potential obtained from the Great Generator. As I said, these electric oscillations are not simple oscillations, but surgings with a definite beat note, the surgings being of a very high frequency, and if we knew of a speed greater than that of light, I would say their speed exceeds that of light (based on 186,000 miles per second).

Now, one will ask, how can you get a steady light from such surgings having so great an amount of energy at such a terrific potential? Could not a steady flow of water be obtained from the surgings of the sea?

Electricity in its primitive form or natural state is deprived of all affinity.

We speak of generating electricity: To be exact, we only transfer it from one place to another (pump it, if you please). We cannot generate it because we can neither create nor destroy it. After we have used it to light our homes or do other work, it is like water over the wheel — no less water, only the lowering of potential. The electricity has only sunk back from whence it came, ready and waiting for nature or man to raise its potential, when it again is ready to do man's bidding, or in other words in the evolution of energy it gradually sinks back into the ether from which it came as it is naturally very slowly but steadily being liberated from the ether. Man may by proper means make the process of liberation rapid rather than the natural slow way of nature.

I fully realize elements maintain an equilibrium by rotations, attractions and repulsions but this does not interfere with a transformation of equilibrium, which when the transformations of equilibrium are rapid enough become heat, light and electricity.

There can be no production of current electricity without an interruption of equilibrium. Whatever the quantity of electricity it will produce no energy if there is no disturbance of equilibrium, that is to say change of potential or electrical level.

When one thinks of the oxygen and nitrogen molecules of the air all about us are moving with the speed of bullets and striking us and every thing with this speed one can form some idea of the agitation taking place in the ether. The oscillations of the Universe are a part of this acitation.

These oscillations of these electrons, protons, etc., out there in space are emitting electro magnetic waves of many wave lengths and frequencies. All I have been able to use have been in their unchanged state of very short wave length, and of a very high frequency. In the Moray device we have one frequency on the high voltage or primary side, and for commercial purposes the device is so constructed that the frequency is very much lower on the secondary side.

I will now go on the account promised above on the back-rush effect of condensers and electromagnetic radiation.

But first let me state that all radiant energy is now believed to possess mass or something equivalent to it. Mass and radiant energy are even considered to be interchangeable.

And in my attempts to measure the wave length of the current obtained the diffraction gratings which are used to determine wave length of other radiations were of no use.

This booklet is getting too long so I must close with the account promised above.

Electromagnetic Radiation

Ether demanded by Electric Phenomena — an Electric Charge a Charge of Energy and an Electric Current a Flow of Energy: To account for the propagagtion of heat and light — that is, of radiant energy — we have postulated the existance of a medium filling all space. But the transference of the energy of radiant heat and light is not the only evidence we have in favor of the existence of an ether. Electric, magnetic, and electromagnetic phenomena (and gravitation itself) point in the same direction.

It is a matter of common observation that attractions and repulsions take place between electrified bodies, magnets, and circuits conveying electric currents. Large masses may be set in motion in this manner and acquire kinetic energy. If an electric current be started in any circuit, corresponding induced currents spring up in all neighboring conductors; yet there is no visible connection between the circuit and the conductors. To originate a current in any conductor requires the expenditure of energy. How then is the energy propagated from the circuit to the conductors? If we believe in the continuity of the propagation of energy — that is, if we believe that when it disappears at one place and reappears at another, it must have passed through the intervening space, and therefore have existed there somehow in the meantime — we are forced to postulate a vehicle for its conveyance from place to place, and the vehicle is the ether.

When a body is electrified, what we must first observe is that a certain amount of energy has been spent; work has been done, and the result is the electrified state of the body. The process of electrifying a conductor is therefore the storing of energy in some way in, or around, the conductor in some medium (the ether). The work is spent in altering the state of the medium, and when the body is discharged the ether returns to its original state, and the store of energy is envolved. Similarly a supply of energy is required to maintain an electric current, and the phenomena arising from the current are manifestations of the presence of this energy in the ether around the circuit. Formerly an electrified body was supposed to have something called electricity residing upon it which caused the electrical phenomena, and an electric current was regarded as a flow of electricity travelling along the wire, while the energy which appeared at any part of the circuit (if considered at all) was supposed to have been conveyed along the wire by the current. The existance of induction, however, and electromagnetic actions between bodies situated at a distance from each other, lead us to look upon the medium around the conductors as playing a very important part in the development of the phenomena. It is, in fact, the storehouse of the energy.

Upon this basis Maxwell founded his theory of electricity and magnetism, and determined the distribution of the energy in the various parts of the field in terms of the electric and magnetic forces. The ether around an electrified body is charged with energy, and the electrical phenomena are manifestations of this energy, and not of an imaginary electric fluid distributed over the conductor. When we speak of the charge of an electrified conductor we refer to the charge of energy in the ether around it, and when we talk of the electric flow or current in a circuit we refer to the only flow we know of, viz., the flow of energy through the electric field into the wire.

Polarisation of the Ether — Electric Waves: The work spent in producing the electricification of a conductor is spent on the ether and stored there, probably as energy of motion. To denote this we shall say that the ether around the conductor is polarised, this word being employed to denote that its state or some of its properties have been altered in some manner by the work done on it — that is, by the energy stored in it. In the case of a conductor possessing what is termed a positive charge, the ether around it is polarised in a certain manner and to a certain extent depending on the intensity of the charge. If the charge be negative the polarisation is in the opposite sense, the two being related, perhaps, like right-handed and left-handed twists or rotations.

Now consider the case of a body charged alternately, positively and negatively, in rapid succession. The positive charge means a positive polarisation of the ether, which begins at the conductor and travels out through space. When the body is discharged the ether is once more set free and resumes its former condition. The negative charge now entails a modification of the ether or polarisation in the opposite sense. The result of alternate charges of opposite sign is that the ether at any point becomes polarised alternately in opposite directions while waves of opposite polarisations are propagated through space, each carrying energy derived from 'the source or agent supplying the electrification. Here, then, we have a periodic disturbance of some kind occurring at each point, accompanied by waves of energy travelling outwards from the conductor.

The phenomena of interference lead to the conclusion that light is the result of a periodic disturbance, or vibration, of the ether, but as to the nature of the vibration — that is, as to the exact nature of the periodic change — or what it is that changes, we possess no knowledge. From the foregoing we see that alternating electric charges are accompanied by corresponding changes of state, or vibrations of the ether, and if the charge be varied periodically and with sufficient rapidity, we have a vibration at each point analogous to, and perhaps indentical with, that which occurs in the propagation of light.

This, then, is the electromagnetic theory of the luminous vibration. In the older or elastic-solid theory, the light vibrations were supposed to be actual oscillation of the elements of molecules of the ether about their positions of rest, such as takes place when waves of transverse disturbance are propagated through an elastic solid. Such a limitation is, however, unwarranted. All we know is that the change, disturbance, vibration, polarization, or whatever we wish to term it, is periodic and transverse to the direction of propagation. The electromagnetic theiry teaches us nothing further as to its nature, but rather asserts that whatever the change may be, it is the same in kind as that which occurs in the ether when the charge of an electrified body is altered or reversed. It reduces light and heat waves to the same category as waves of electric polarization; the only quality of the latter required to constitute the former is sufficient rapidity of alternation. These speculations have received the strongest confirmation by the important experiments of Professor Hertz. Before describing them we shall consider the mode of discharge of a condenser. The theoretical investigation was given by Sir William Thomson (Lord Kelvin) as early as 1853 (Phil. Mag. June, 1853).

Oscillating Discharge: When any elastic substance is subject to strain and then set free, one of two things may happen. The substance may slowly recover from the strain and gradually attain its natural state, or the elastic recoil may carry it past its position of equilibrium, and cause it to execute a series of oscillations. Something of the same sort may also occur when an electrified condenser such as a Leyden jar is discharged. In ordinary language there may be a continuous flow of electricity in one direction till the discharge is completed, or an oscillating discharge may occur — that is, the first flow may be succeeded by a back-rush, as if the first discharge had overrun itself and something like recoil had set in. The jar thus becomes more or less charged again in the opposite sense, and a second discharge occurs, accompanied by a second back-rush, the oscillation going on till all the energy is either radiated or used up in heating the conductors.

Let Q be the charge of the jar at any instant, C its capacity, R the resistance of the circuit, and L its coefficient of self-induction. Then if I be the intensity of the current and E the electromotive force, we have the equation —

$$E - IR = \frac{d}{dt}(LI) = L\frac{dI}{dt},$$

In this case $E = \frac{Q}{C}$, and $I = -\frac{dQ}{dt}$. Therefore

$$L\frac{d^2Q}{dt^2} + R\frac{dQ}{dt} + \frac{Q}{C} = 0.$$

The solution to this equation is

$$Q = Ae^{ut} + Be^{u't},$$

where u end u' are the roots of the equation

$$u^2 + \frac{R}{L}u + \frac{1}{CL} = 0,$$

or

$$u = -\frac{R}{2L} \pm \sqrt{\frac{R^2}{4L^2} - \frac{1}{CL}}.$$

Writing

$$a = \sqrt{\frac{R^2}{4L^2} - \frac{1}{CL}},$$

so have

$$u = -\frac{R}{2L} + a \quad u' = -\frac{R}{2L} - a$$

and

$$Q = e^{\frac{-Rt}{2L}}\left(Ae^{at} + Be^{-at}\right),$$

where A and B are constants determined by the initial conditions, viz. that initially we have $Q = Q_0$, and $I = 0$, which give

$A + B = Q_0$, and $Au + Bu' = 0$,
or

$A = Q_0\left(\frac{1}{2} + \frac{R}{4La}\right)$, and $B = Q_0\left(\frac{1}{2} - \frac{R}{4La}\right)$.

Hence at any time we have

$$Q = Q_0 e^{\frac{-Rt}{2L}} \left\{ \left(\frac{1}{2} + \frac{R}{4La}\right) e^{at} + \left(\frac{1}{2} - \frac{R}{4La}\right) e^{-at} \right\}.$$

Consequently the current at any instant is

$$I = \frac{dQ}{dt} = \frac{Q_0}{2CLa} e^{\frac{-Rt}{2L}} \left(e^{at} - e^{-at}\right).$$

Hence if a be real — that is, if we have $R^2 > \frac{4L}{C}$ --- the quantity Q will gradually diminish to zero as the time increases.

If, however, we have $R^2 < \frac{4L}{C}$, then a will be imaginary, and writing

$$a' = \sqrt{\frac{1}{CL} - \frac{R^2}{4L^2}},$$

the above formulas become at once

$$Q = Q_0 e^{\frac{-Rt}{2L}} \left(\cos a't + \frac{R}{2La'} \sin a't\right),$$

and

$$I = \frac{Q_0}{CLa'} e^{\frac{-Rt}{2L}} \sin a't.$$

In this case the current starts from zero and rises to a maximum; it then falls to zero and becomes reversed, after which 1t passes through a series of oscillations. The discharge therefore does not take place in a single flow from one coating to the other, but a back-rush sets in, and a series of currents, or oscillations. occur alternately in opposite directions.

The current attains its maximum intensity when

$\tan a't = \frac{2La'}{R}$ (maximum current)

The zero value of the current is reached when

$a't = n\pi$ (zero current)

and consequently the charge at the same time is at its maximum, for we have $I = \frac{dQ}{dt}$. Thus the charge oscillates backwards and forwards, attaining positive and negative maxima after the lapse of equal intervals , the time of a complete oscillation being

$$T = \frac{1}{\sqrt{\frac{1}{CL} - \frac{R^2}{4L^2}}}$$

If the resistance be small compared with the reciprocal of the capacity we may use the approximate formula

$$T = 2\pi\sqrt{CL}\ .$$

[If the capacity be expressed in electrostatic measure and the self-induction in electromagnetic, this expression takes the form $2\pi\sqrt{\frac{CL}{v}}$ where v is the velocity of light.]

The successive maximum charges occur when I = 0, or $a't = n\pi$, they are therefore

$$Q_0,\quad Q_1 = -Q_0 e^{\frac{-\pi R}{2La'}},\quad Q_2 = -Q_0 e^{\frac{-3\pi R}{2La'}}$$

.

The quantities therefore diminish in geometrical progression, and the energy of the charge diminishes correspondingly on each oscillation, being lost by radiation into space, or in heating the circuit, or both.

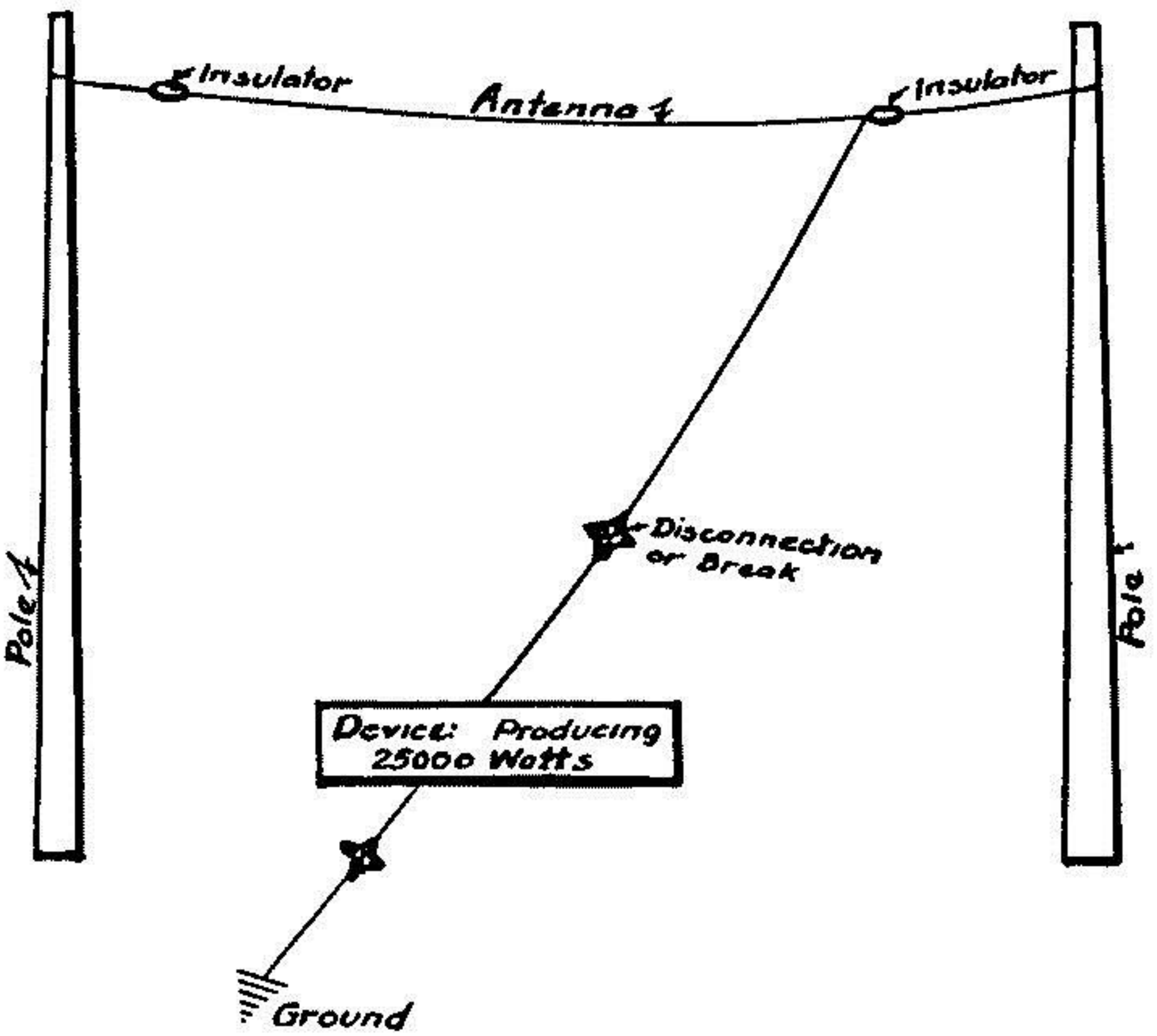
Whether the discharge is continuous or oscillatory therefore depends on whether 4L is less or greater than CR^2, and an oscillatory discharge may be obtained either by increasing L or sufficiently diminishing C and R.

These predictions of analysis have been confirmed, as Thomson suggested, by examining the spark, during discharge, by means of a revolving mirror. In Feddersen's experiments the image of the spark in a revolving mirror was viewed through a telescope. When the resistance of the circuit was high the spark was merely drawn out in width , that is, at right angles to its length; but when the resistance was sufficiently reduced, so that the oscillating discharge might occur, the band was reduced to a broken image consisting of a series of strips, each strip corresponding to a discharge. For an account of the researches made in this department see Wiedemann's Elektricitat, vol. iv. pp. 177, etc.

In closing let me say to the scientific men who are, should we say, skeptical but not antagonistic to the Moray presentation and demonstrations. Do you believe that the demonstrations claimed to have been made by Moray have been made? If you do, why are they not enough to convince any man? Can you point out one way that they could have been faked that has not been overcome in the demonstrations? If you do not believe the demonstrations have been made as claimed, go and talk with those who have written the letters. There are too many reliable men who will tell you that they saw what is claimed and that the thing is as claimed. Now if you do accept the letters as genuine, what is the question? Moray fooled those for whom he has demonstrated? Man alive, Moray must be some fake to fool such electrical engineers and other electrical experts together with the one hundred or more intelligent men for whom this thing has been demonstrated more than one hundred times.

Every demonstration has been the same, and unless one is so prejudiced that he is bound he won't believe, how are you going to get around what has been done? If you won't believe, in fair mindedness you ought to be willing to point out why you do not. If you say because it is not in harmony with science, what does that prove? Nothing. What is Science? Is the world not every now and then forced to change its law on science, as we know them, to agree with proven facts? Saying a thing won't work when it has been working for many years is a rather strange way to answer a question. The fact remains these demonstrations have been given. No sane man can say they have not. Now then if they are not faked then they are what is claimed for them. If they are fake, should not the type of men who have made such detailed investigations been able to detect the fake? The accounts of these demonstrations have been stated in such clear, plain language that you who have any scientific training can see the demonstration just as clearly in your mind's eye as if you had the machine before you. Here are two poles, one wire for an antenna with insulators at each end. A ground is driven and one wire run over from that. The antenna wire and the ground wire are connected to the Moray device. All is complete; every part of the device is tested: no energy is there. The device is tuned and the antenna and ground in connection become alive with a very high frequency current and the things are done that the letters claim. What are you going to do about it? Do you not think that in fairness, unless you can point out one way in which that energy could have gotten there except as claimed for by Moray, that it is your duty to say, "The demonstrations as given establish this thing as a fact in spite of all our own ideas." If this thing has been done in such a way that it is impossible for a man to fake, then is it not a fact? And if no man can point out one way that it could be fake then what? Moray's answer is that as soon as any man can give one point that has not been covered, that leaves any room for doubt, then will he be willing to overcome that point. But if you cannot point out any weak points, and no one can, then there are none. Every point has been covered is the claim of the inventor. Why should he give "side shows" to any one unless they can point some new point which they can see has not been covered by what has been done? Just to satisfy each man by letting him see with no objective in sight is worse than wasted effort.

Men of science, if you will deal in facts, Moray will welcome your objections, but he can demonstrate until Dooms Day, he can write until the same and talk theory until we come to the point one Doctor of Science did when he said that one hundred divided by one hundred fifteen equals three. All of that will not overcome the fact that these demonstrations have been given. They are facts and doubt will not overcome facts. It takes more facts. The facts required are drawings and explanations on some possible way these demonstrations could be anything but what is claimed by the inventor. And gentlemen, until this is done you cannot in reason expect Moray to take you seriously as he has looked in vain for a certain few to okay this. When an instrument is in every section of this world of ours, maybe these last Doubting Thomases will have to give in. But, gentlemen, if you have no foundation for your claims that it can't be done, why try to build without a foundation? Doubt is no foundation upon which to build against a foundation of facts upon which a house of facts is built.



Stars give an idea of where the antenna and ground has been disconnected in the accounts gives of the demonstrations, and in each case the lights go out and a heavy brush discharge leaps many inchs between the points of disconnection. If the connection is again made at once, the light again appears, but if the connection is not made the device becomes electrically dead, and must again be tuned in and the oscillations started before the device will operate. Standard light globes and beating appliances are used. No change of house wiring is necessary. Such demonstrations have been made miles away from all power lines, and on antennas erected by those for whom demonstrations were being made.

2484 South Fifth East
Telephone Hyland 868

Moray Scientific Laboratories
Dr. T. H. Moray
SALT LAKE CITY, UTAH

Gentlemen:

At the time of this writing another year of research is about to close on my efforts with "Radiant Energy." During the year the capacity of this discovery has been increased over 2000 times what it was a year ago and greatly simplified. During the past five years many men of Science have come from foreign countries and from the east and west and have been given demonstrations and not one of them has been able to find any fault with what they have heard or seen. Names of these Doctors of Science will be furnished upon request. These men have had the device opened for their inspection and have pronounced the demonstrations wonderful, that the current is high frequency, the color of the light different, that the device carries over six times as much current without even getting slightly warm as any other electrical device of like construction known to man today could do without bursting into flame. That the tubes used are far more powerful than anything known to science today. The drawings, circuits and theory have been pronounced by leading men of science as scientifically, electrically, mechanically sound and correct.
I welcome and invite any man or group of men to meet me and dispute my claims or show even any slight inconsistencies in my discoveries or the theory upon which they are based. All have stood the severest tests o f inspection and being based on facts will stand every test that can be devised. This statement is made without reservations of any kind whatsoever.

Very truly yours;

(Signed) T. H. MORAY.

Radiant Energy
--- For Beyond the Light Rays Lies the Secret of the Universe ---
The Evolution and Transmutation of the Atom

[Third Edition, 1945]

Compiled for the Layman from Excerpts of the Writings of
DR. T. HENRY MORAY

RESEARCH INSTITUTE, INC.
SALT LAKE CITY, UTAH

The Words "Radiant Energy" and "Dr. Moray" have been synonymous for the past twenty years.

The reader should bear in mind that most of the ideas as set forth in the following pages, as also later date, were first given to the world by Dr. Moray from 1911 to 1931, and therefore should be read with that thought in mind.

In the past we permitted ourselves to be put on the defensive in our attempts to prove our stand. This was a mistake, as TRUTH should never be put on the defensive. The system of instruction of the Far East rather than that of the Western World should be used in advancing new discoveries of truth. In the Far East the teacher does not stop to prove each theory or fact. The message is delivered whether his hearers agree with him or not. He does not care whether they all agree with him or not, for he feels sure those who are ready for the truth he teaches 'rill recognize it, and for the others, if they are not prepared to receive the truth; no amount of argument will help matters. The Eastern teacher knows that much of his teaching is but the planting of seed which will grow and be recognized only after the lapse of time.

We do not, mean that anyone should blindly accept everything presented to him, but history, repeating itself, does prove that mankind goes on from one generation to another blindly closing its mind to new lines of thought only because he does not or will not. understand or grasp the situation and the laws involved. Just as those who.should have known better rejected the telephone as impossible because, to quote, "It is impossible to transmit the human voice over a copper wire." That was true when the telephone was discovered by Josia Coppersmith, it is true today and it will always be true. It is impossible to transmit the human voice over a copper wire. Yet in spite of that, the telephone does work. One might even go so far as to state there is no such thing as a human voice, yet man transmits his thoughts to one another by what we commonly refer to as "speech" and "hearing" in spite of the fact that man's vocal chords are not transmitters of other than mechanical vibrations and all the so-called sound originates in the skull of the hearer and not in the vocal chords of the speaker.

As we asked the question over fifteen years ago, we repeat that question now: "Why should man waste his time and efforts in trying to split the atom when nature is doing it all the time for us out in space?" Why not use the energy offered us in place of worrying about why grass is green in the hope it will discover for us a new source of energy which has been sitting on our doorsteps since the World began?

The salt of the earth is energy and the evolution of matter and the evolution of forces in the process of the creation of all things. By the proper uses of these natural laws of energy and matter, matter is turned into energy. That is something we all agree can be done, but do we understand that man can by the proper use of these same laws take energy and reverse the process and change energy into matter.

It is not a question of finding new elements, but of being able to use energy and matter in whatever wave length one finds them and of changing them to any desired wave length or frequency by letting nature do our "atom splitting" for us. It is cheaper, faster, more sure, and the potential possibilities far exceed any puny efforts of man. I say puny, for, while man may discover new means of causing explosions and of creating explosives, he has not and cannot split the atom. It is merely a question of a change in form, no less matter and no less energy. We separate energy only to have it join elsewhere. If we can split the atom actually, we will have split the chain that holds the cycle of the Universe together and, like one drop of gasoline exploding all the other drops of gasoline near it, so will the chain of atoms, go right on splitting every other atom of the Universe, and that cannot be done any more than one can compress water.

In the laboratories of the Universe we find the .uranium and radium series changing from uranium to radium, radium into radon and radium A, B, C, C, D (radio lead), radium E, F, and finally into lead, and if we follow the process, lead into gold and so on. In the laboratory we have changed lead into gold and by reversing the process changed lead into polonium or radium F. If this step can be taken either way, is there any reason why further steps cannot be taken?

This is not a case of splitting the atom, but merely of addition, multiplication, division and subtraction of the combinations of the atoms, but not the breaking into of the chain of the Universe. It is plain evolution of matter and evolution of forces and there is no need in highly overestimating the accomplishment under false interpretation of the facts.

As frequency or oscillations is the basis of the existence of all animal, vegetable and mineral matter, one could explode matter from any distance to which the proper oscillation could be transmitted. Our experiments have proven to our complete satisfaction that stores of ammunition on the land, in the air or on the sea can be thus destroyed.

Our experiments have also satisfied us that gravity is akin to, if not an electrical oscillation so well balanced that we might, for the lack of a better name, almost call it a "Wattless current" until some force is exerted to oppose its potential and then gravity opposes such force. This means gravity can be controlled and unlimited advancement made in air navigation, with the only concern left being air speed and momentum.

There is much of value to be developed in fields.that have not even been touched and about which very little is known in research in the atomic nucleus. We have made some astounding discoveries in artificial radioactivity set up, not by the usual expensive method with the cyclotron, but by the Moray method. A new world is to be entered through ultra sonics, hyper and ultra high frequency currents created through the use of certain tube discoveries working in ionizations as well as electronic action.

Too little work has been done with rays or frequencies around 106 to 103 A. U., no doubt, because the mechanical means used in working in this field has been attempted with practically the same type of equipment used in the one-meter field. We might as well try to carry water in a sieve.

It is my belief that Television also will never be a complete commercial success until the method of approach is changed to a celestial wave rather than the present approach.

One should not enter these experimental fields in the gamma band without the proper protection, for one will be risking his life in this work without a proper absorber. Water, the common means of protection, has proven of little value as an absorber in most of our investigations. Neither has boric acid water or hydrogen gas proven too satisfactory as an absorber.

In September, 1943, a letter was written by us on transmutation of metals to some parties interested in mercury experiments, part of which letter follows:

In the reducing of colloids from a non-crystalline state to a crystalline state, the current and rays used must be such as to produce a synchronous action. It is well known that colloidal "solutions" do not obey the solution laws: the alterations of the boiling and freezing points are inappreciable and the osmotic pressures very small. A colloidal solution is, in reality, a disperse system, and in the case of attempting to "knock down" the suspended metallic colloid one must cause what might be called coagulation and precipitation of the metallic colloid found in metallic sulphides, chlorides or salts of a metal in a non-crystalline form to a coagulated and crystailine state.

Now, whatever frequency of current used and whatever ray or rays used, the frequency of the current and the wave length of the ray or rays used should harmonize so as to blend or synchronize with the natural frequency or wave length of the substance treated so as to produce the synchronous action that will set up a vibration for which we might "coin" an expression and call this action a "super-ultra sonic reaction" between the frequency of current, the wave length of the ray, and the vibratory rate of the substance treated to cause the desired metabolic or catalystic reaction which will result in, I am convinced, a complete change in the mode of mining. That the mining of the future will not be done in the crude ways of the past. Man's work with animals, vegetables, fruits, flowers, and all sorts of animal and vegetable life has shown that he can improve on the things that nature produced. Man must first go to nature to learn, but then he must learn to improve over nature's ways. I am positively convinced that man can improve nature's mineral deposits by making "colloids" "grow," if one does not object to such an expression. Or, in other words, speed up nature's action and obtain the same or better results in a fraction of the time taken by nature.

In the catalystic production of metals from "colloids," one must remember that like begets like, and one cannot obtain copper from the "salts" of some other metallic deposit.

In the catalystic production of metals from colloids one must not confuse this process with the evolution of forces and the evolution of matter, the former being the process of "growing" from colloids, the latter the actual phenomena of energy becoming matter and matter, energy. This still is not a process of splitting the atom, but changing the arrangements of them.

The real test of science in modern destruction lies not in the explosion of matter by matter or matter by energy; but energy by energy, "super" ultra sonics against the vibrations of matter.

GENERAL STATEMENT

Compiled in Los Angeles, California, January, 1939, from Moray notes and printed booklets written by Dr. Moray from 1913 to 1926. See "Beyond the Light Rays" and other publications. This account may lack continuity.

This account will endeavor to give a brief explanation of the Moray Radiant Energy device whereby it is possible to utilize the vast source of energy of the universe without a prime mover through the splitting of the atom by the action of the universe not man-made splitting of the atom.

The Moray device is not perpetual motion, but it utilizes energy that already exists and transforms it into useful forms. An electrical generator is in the true sense not a generator, as it creates nothing. Electricity is not made by the generator, it is merely pumped. From that standpoint, an electric generator might be referred to as an electric pump and the Moray Radiant Energy as a high-speed oscillating atom turbine.

On page seventeen of the "Nature of the World and of Man" (compiled by the technical staff, Chicago Institute of Technology), we find it states that our planet is receiving energy from the sun continuously at the rate of 160,000 horsepower per inhabitant of the earth at the present time.

The following is taken from "Experiments with Alternate Currents of High Potential and High Frequency," by Nikola Tesla, page fifty-eight, written in 1904:

"Ere many generations pass our machinery will be driven by power obtainable at any point in the universe — Is this energy Static or Kinetic? If Static, our hopes are in vain; if Kinetic, and this we know it is for certain, then it is a mere question of time when men will succeed in attaching their machinery to the very wheel work of nature."

The aurora borealis is considered to be very definitely an electrical phenomenon produced by the passage of electric charges through the rarefied gases of the higher atmosphere.

The conversion of matter to energy in the stars is now very generally accepted as demonstrated, and reasoning from what occurs in radioactive disintegration, during which energy waves are radiated, we may conclude that energy waves of very high frequency are sent out from the stars, one of which is our sun.

As in the reception of radio waves, so in this case the circuit is a tuned arrangement to respond to the particular wave frequency "oscillations" which it is desired to intercept. Dr. Moray uses a "valve" to prevent return of the energy to the outer circuit and force it to go through the power application circuit.

Experiments have been made at different places many miles away from all power lines, one experiment being given at a point more than 50 miles from all power lines, and 26 miles from even a farmer's telephone. The places for these experiments were selected by the members of the parties making the test and not by the inventor, and the places were not prearranged but selected by them as they drove along in their own car, not the car of the inventor, looking for a place to make the test.

The device on an endurance test was operated under standard R. R. seals for a total of 157 hours and 55 minutes, when the seals were broken and the device put under severe strain and tests made for about an hour longer and then shut off.

Close examination of the device disclosed that all parts were in perfect shape and could have been run indefinitely. During the entire test the lights burned evenly and brightly without flickering and there was no change in the brilliancy from day to day.

The quantity of current passing through the secondary of the transformer is sufficient to burn up wire of that size if ordinary current were used, yet there is no heating of the transformer even though there is no circulation of air through it to cool it, as it is completely enclosed. All parts of the machine run absolutely cool, regardless of the length of time operated.

It makes no difference whether one fifty-watt lamp is used or whether fifty or more of them are connected to the machine, the draft of current is adapted to the load.

There is not a sound from the machine when in operation, there being no moving parts.

In 1931 an experimental demonstration was made in the presence of a nationally known physicist, a professor in one of the greatest universities of the country, at which time he noted and mentioned the following:

"That when the oscillators are connected in the circuit, the condensers fill slowly, and the longer the current is applied to charge them, the greater the charge they take, up to their maximum for the applied voltage, much as in filling a bucket by pouring the water into it, instead of taking the charge practically instantaneously, as is ordinarily the case with condensers."

"That the lights on one spot are much hotter than is ever the case with any current used at the present time, due to the incandescence of the gas in the globes under the influence of the very high frequency that the rest of the globe remained cool."

"That the size of wire in the transformer could not carry the amperage passing through it without burning up, if ordinary current were used, yet the wires remained absolutely cool no matter how long the machine operated."

"The above points show that there is developed something which is entirely out of the ordinary, and cannot be accounted for on the basis of induction from existing power lines or current from batteries."

In later experiments tests were made successfully while the device was set up in a moving automobile.

Beginning in.1925 many men of science have come from foreign countries and from the East and West and have witnessed experimental demonstrations and not one of them has been able to find any fault with what they have seen or heard. Names of these men of science will be furnished upon request. These men have had the device opened for their inspection and have pronounced the experiments wonderful, that the current is high frequency, the color of the light different, that the device carries many times as much current without even getting slightly warm than any other electrical device of like construction known to man today could do without bursting into flames. That the tubes used are far more powerful than anything known to science today. The drawings, circuits and theory have been pronounced by leading men of science as scientifically, electrically, mechanically sound and correct.

It is generally accepted now by science, and Dr. Moray's device proves, there is energy coming from somewhere, that the earth is surrounded by such a field of energy.

This energy, or as Dr. Moray explains it — these oscillations of Energy, are picked up by the device through the oscillators, or neutron bombardment. As stated, these surgings or oscillations of Energy coming and going as the waves of the sea are picked up by the Moray Device because the Moray Device is tuned to oscillate in harmony with the oscillations of the universe. Every oscillation, whether large or small, is completed during the same interval of time. The beat note of time, the heart beats of life, the oscillations of the Universe all prove the same great fact that oscillations are all governed by the same cycle of time, completed during the same interval of time, and as I stated before, these waves of energy have a regular beat note of time, coming and going as the waves of the sea, but in a very definite mathematical order of time, coming to the earth from every direction with a regular beat note that might be referred to as the Father of Time, the Sire of Gravitation.

This energy has a definite elastic rigidity and density, which is subject to displacement and strains. When the strain is removed, this medium will spring back to its old position and beyond, surging back and forth as the waves of the sea, and will continue to oscillate until the original pressure is used up. If the internal impedence is too great, there will be no oscillations, but it will merely slide back in a dead beat to its unrestrained state. Cutting down the resistance to the minimum and by synchronous actions of the device with the actions of the Universe, recovery will be quicker and quicker until inertia will assert itself and lengthen out the time of final recovery by carrying the recoil beyond the natural oscillation and thus prolonging the vibrations by oscillation. When the recovery is distinctly oscillatory and harmonics set in the oscillations will go on forever because of the oscillations of the Universe. As I said, these electric oscillations are not simple oscillations, but surgings with a definite beat note of the evolution of matter and the evolution of energy.

It is not claimed that all of Dr. Moray's theories are proven, but it is claimed that the device works. The results are certain and that in the absence of better explanation as given in the 1931 edition of "Beyond the Light Rays," Dr. Moray's explanation is as good as any.

In explaining this theory in 1929 to a well-known and noted American Scientist, he remarked, "You go in your theory back of the law of gravitation."

We may readily take it for granted that a perpetual light, like perpetual motion, is an impossibility. I say that because I do not believe in perpetual light or motion, which, in a sense, is one and the same thing as getting something for nothing.

In this day and age it is not well to say anything is impossible, but getting something for nothing goes beyond my conception of thought. What I have done in Radiant Energy has been and is perhaps rightfully called "radical." Nevertheless, of the great number of learned men who have seen and heard of my work, not one has been able to disprove my claims, theories or discoveries. Among those in question have been some of America's foremost in Science, although they have spent from many hours to days on my theory and claims and test demonstrations. Hence this further explanation of the Moray theory, on which Moray has spent his time from boyhood.

The facts and theories herein contained are not contrary to ideas that science has now accepted. They are, however, original with me in application and when I first publicly advanced them in 1925 they were "killed" as it were by those who heard them before they got very far. Be that as it may, I have taken "Radiant Energy" and found a means of using it. Heat, light, etc., are not things in themselves, but sensations or effects produced by this "Radiant Energy" directly or indirectly from matter.

Electricity is vibrations or radiation. Where ether (or if you do not like that name, call it what you will) is quiescent, we see nothing. Light causes vibrations of this "ether" and it is these vibrations which cause our eyes to detect. All substances are really combinations of one primordial substance, i. e. electricity, or, in other words, electricity is specifically modified ether. Electrons in motion go to constitute an electric current. Ether waves in motion go to constitute an electric current. What electricity is to matter, so is electric force to common mechanical force, and electrical inertia to common inertia. By inertia, I mean the ratio of force to acceleration. Perhaps electric inertia might be defined as the ratio of electric motive force to the acceleration of electric displacement.
Below will be found some excerpts from some Scientific books.

"*ASTRONOMY*", by Robert H. Baker, Ph. D. Professor of Astronomy, University of Illinois, page 303:

"Another problem relates to the apparent lavish expenditure of this radiation. Of all the energy that pours forth from the sun, less than one part in 200 million is intercepted by the planets and their satellites. The remainder spreads through interstellar space with little chance, so far as we can know, of being recovered. The suggestion that the sun shines only in the direction of material that can intercept it makes an appeal from the point of view of economy, but appears to have little else to recommend it. It would seem that nature is squandering its resources of energy so prodigally that it must end in bankruptcy; but we doubtless have at present an imperfect account of the situation."

"*FOUNDATIONS OF THE UNIVERSE*" by M. Luckiesh, D.Ss. Director of Lighting Research Laboratory, General Electric Company, printed in 1925, page V:

"In the far-off stellar crucibles we see the same laws being obeyed as in our laboratories. As we trace down to the almost infinitesimal constituents of the extremely minute atom we find that apparently it does not exist at all as the realistic matter which we have supposed it to be. There at its very foundation it seems to consist of electric charges which probably simulate the motions of celestial bodies * * *. It is becoming more and more certain that the apparent complexity of nature is due to our lack of knowledge. As the picture unfolds it promises a marvelous simplicity."
Again quoting from "*FOUNDATIONS OF THE UNIVERSE*," by Dr. Luckiesh of General Electric, pages 41-43:

"The great success of the atomistic principle as it is involved in the kinetic theory of matter is one of the wonders of the modern scientific age. It is to be expected that it has found other applications equally fascinating and promising. It is now being pressed further into the service of explaining the structure of matter…"

"When Maxwell (1873) propounded the electromagnetic theory of light (radiation), his achievement was epochal. The exact manner in which the radiant energy traversed space was not known, and the exact epochal event was the founding by Planck (1900) of the quantum theory. Here we have the atomistic principle applied to energy instead of being confined to the material of the universe as it had been. In other words, in the quantum theory we have the atomistic idea applied to physical processes. We now have the atom of matter, the atom (electron) of electricity, and the atom (quantum) of action (a product of energy and time). Planck assumed the emission of radiation (from the sun, a lamp filament, etc.) to occur discontinuously. He conceived elements of energy of equal magnitude analogous to the equality of electrons, or atoms of a given element. Radiation or radiant energy is emitted of various wave lengths or frequencies which must be taken into account in laws of radiation… Now the physicist uses quanta as commonly as he does electrons and atoms and molecules. Bodies are built of molecules, the molecules of atoms, and the atoms of electrons (and protons). Here we see the atomistic principle applied to "material" (matter) and then to electricity (What shall we call it?). Finally, a physical process — the radiation emitted by the electrons — is divided into quanta. With such pictures of the universe being constructed we may cease to be surprised at anything, but our interest and admiration will grow. Will we ever get to the final foundation?"

"One of the most marvelous relationships that has ever been revealed in the entire science of physics . is that between light and electricity. Knowing what we do at the present time in regard to the structure of atoms, this relationship is not quite so surprising. However, considering the total absence of knowledge a half century ago, pertaining to the existence. of electrons in atoms of matter, the sudden revelation that light (and radiation in general) was an electrical phenomena was very startling and revolutionary. Even today these persons who are unfamiliar with fundamental physics find it difficult to believe that energy traveling from yonder star to the eyes is electromagnetic in nature. But that it is so has been amply proved. The atom in those distance stellar crucibles having moving electrons which are emitting electromagnetic waves of many wavelengths or frequencies. Here on Earth we have many 'receiving stations' which are tuned to certain ranges of wavelengths."

"*RADIANT ENERGY*" by Edgar Lucien Larkin, Director Lowe Observatory, Echo Mountain, California, printed in 1903, on page 17:

"Radiant here means proceeding from a center in straight lines in every direction. Energy is internal and inherent. Professor Barker, "Physics," page 4, says: 'Energy is defined as a condition of matter in virtue of which any definite portion may effect changes in any other definite portion.' This was written in 1892, and discoveries since confirm it. Energy then, is a state of matter, or, rather, the result of a particular state or condition in which matter may be when any observed phase of energy appears."

The SUN PHOTO SERVICE
Salt Lake City, Utah
Dr. T. H. Moray
Salt Lake City, Utah.
Feb. 26, 1940

Dear Sir:

We wish to thank you for the recent business you have given us, and hope we may have the pleasure of serving you again.

For your information we wish to state that in all cases where natives included any of your lights we found them to be of greater intensity than ordinary illumination. They seem to burn in the negative to such a degree that we found it necessary to cut special masks to hold back the immediate area of illumination in order to obtain any outline of the globes whatever. We found the average negative required about ten times the normal exposure .in the areas where lights were used. This is especially interesting as in photographing ordinary lights when shining directly into the lens of camera the light outline can be plainly seen even, though the negative is dense at point of illumination and in the case of your lights the.only detail possible to obtain had to be brought out through holding back dense area as mentioned above.

Very truly yours,
THE SUN PHOTO SERVICE
By D. R. Silvers.

Have other letters from expert photographers which all show the activity of the rays by the way they burned into the photographic film.

* * *

One hears a great deal about the work being done by the cyclotron or atom-smasher, from the first one constructed by Dr. C. E. Lawrence at the University of California to the sixteenth 'American cyclotron now under construction at the University of Illinois. The University of

Illinois already had a small one, the second one built in the world; but this new one; which will be ready about April or May of 1942, and which will have taken many many months to construct, will have six huge iron castings weighing 60 tons. One section will have two miles of copper tubing wound into a dozen flat coils.

Hundreds of thousands of dollars are being spent for apparatus with which to effect transformations and many of the greatest scientists are giving their entire time to this work. All this time and money could be saved if we would but realize the fact that nature is splitting atoms all the time for us. That is the source of energy of the Universe being given to us free of charge.

The Carnegie Institution of Washington, D. C., has its Atomic Physics Laboratory. At Harvard University mercury has apparently been turned into gold by the cyclotron. This experiment was reported in Washington to the American Physical Society by Dr. Sherr and Professor Bainbridge.

The report shows, however, that the amount of gold obtained was so exceedingly minute that its presence was shown only by an indirect method. Further, it is in a form of gold that vanishes rapidly. It decays like radium. With one form detected, after 48 minutes half of a given amount was gone; after another 48 minutes half of what remained was gone and so on. Other.forms lasted but a few days. Small amounts of platinum were also formed by transmutation of mercury.

A tiny amount of gold was. mixed with about a pound of the bombarded mercury as a bait to draw the transmuted gold atoms together.

One can see, therefore, that transmutation of metals is an 'accomplished fact, something which twenty years ago would have been called impossible by the same institutions that are spending so much time and money today on this research.

So again it is with great satisfaction that the Research Institute and its predecessor, the Moray Scientific Laboratories, sees that the work it has been doing and for which it was called all sorts of kind (?) names is being followed by others.

We say followed by others advisedly, because as early as 1911 the personnel which is now a part of the Research Institute, advanced as facts, discoveries of rays of the universe and of natter, which today are being substantiated in the greatest institutions of the world.

As early as 1925, by a method far less complicated and expensive, the Moray Scientific Laboratoies, the fore-runner of the Research Institute, changed common lead so that it could be heated to a white hot heat before melting. Other treated lead which contained no precious metals before treatment assayed as follows: May 28, 1940, from one ounce of lead treated at Salt Lake City, Utah, and assayed at the Boaz Mine, Norris, Montana, assayed 35c in gold. Five ounces of untreated soil assayed blank while the same amount of treated soil assayed at the rate per ton of $122.50 in gold.

July 25, 1940, an assay was made by the Union Assay Office of Salt Lake City, Utah, from about 50 c.c. of treated artesian water (untreated water had no precious mineral content) assayed at the rate per ton of $10.50 in gold, $2.63 silver. Sample serial No. 88193. Test serial No. 7209 made

July 27, 1941, on another sample treated, assayed 70c in gold and 43c in silver.
It must not be understood that this was done on a commercial basis but in the laboratory just as the results given above that were obtained at Harvard. The only difference was that the gold, silver and platinum obtained at the Research Institute was not in such tiny amounts that their presence could only be detected by indirect methods, but that they were in great enough quantities that they could be assayed. They could be milled and separated from the other metals and could be weighed. Furthermore, none of these precious metals vanished, but still exist and can be examined by anyone.

In America and abroad, especially in Germany, scientists have devised the thermal diffusion method which has proven to be one of the most efficient methods of separating the different forms of isotopes of the elements. With this method scientists have separated not only the isotopes of chlorine, but those of neon, krypton and others, but again this is an expensive process.
By the methods used in the laboratories of the Research Institute very interesting results have been had with copper, lead, aluminum and magnesium. A cheap alloy which blends well with other metals has been experimented with, the commercial price will be much less than magnesium, yet the atomic weight is about the same after it is fused by special rays and frequencies of a Radiant Energy device developed in the Institute laboratories.

Successful experiments were also carried on in 1940 to greatly increase the radioactivity of carnotite, uranium and other radio-active substances. This method brings results heretofore not obtained by any other method.

* * *

Hollywood, Calif.,
May 20, 1942.
Dear Mr. ....

With reference to our recent conversations and as a means of clarifying my position, let me repeat some of the statements I have made to you.
At that time and other times I wrote you, among other things, the following, which I will again repeat:

"It is recognized that in addition to possessing kinetic. energy, the atom is capable of absorbing energy internally. This internal energy would seem to be associated with the configuration of the particles of which the atom is composed. While under ordinary conditions an atom is in what is known as the normal state, or the state in which we find matter apparently neither giving off, nor absorbing energy. The internal energy of the atom can be altered; for while under ordinary conditions an atom is in what is known as the normal state, when the internal energy of the atom exceeds that of its noraml state it is said to be excited. Excitations may be caused in several ways, among which is the collision of the atom with rapidly moving positive or negative particles, or as in the breaking of the lines of force in the modern electromagnetic generator, which I prefer to call an electric pump, for the electric generator does not create the electrical energy any more than the water pump creates the water. Kinetic energy is given up, or, in other words, this excitation causes these rapidly moving particles to give up some or all of their kinetic energy to the atom during the collision. A limiting case of excitation is ionization, in which energy is absorbed by the atom sufficiently to allow a loosely bound electron to leave the atom against the electro-static force which tends to hold it within the atom. An atom which has given up one or more electrons is said to be ionized.

It is possible that ionization, or in other words excitation, may take place in successive steps through absorption of quanta energy, or, in other words, through the evolution of matter and the evolution of forces, matter is continuously changing into energy and energy continually changing into matter. The return of an ionized atom to a state of lower energy is associated with electromagnetic radiation. So also from the process of ionization which may result from a number of causes, and the one we are interested in is through cosmic radiation, electric energy becomes associated with the oscillation or sonic of the universe. The higher the frequency, the greater the ionization or excitation. Or, as I have stated before, matter is susceptible to motion; the universe continually changing into energy and energy into matter. All energy appertains either to matter or excitation of energy and continually passes from one to the other, or in other words, continually possessing kinetic energy. There, at its very foundation, matter consists of an electric charge which governs the very motion of the planets and suns. I consider gamma rays or radio activity an electrical action only of a different rate of vibration.

If one, therefore, sets up a sonic oscillation, a sonic oscillation existing in the realms beyond the light rays, one will be in harmony with the oscillations of the universe, the energy that is coming to this earth continuously, oscillating back and forth in a definite sonic. Some call it radio activity.

Relativity theory suggests that radiation of any large amount of energy is accompanied by a like loss of mass. This loss of mass is given up as the loss of energy. If in the formation of an amount of energy we have an accomplished loss of mass, as has been explained by astro-physicists to account for the radiant energy of the sun and the stars, it is equally reasonable to believe that energy in returning back to the source from whence it came, is capable of again creating mass, and through this process we have a lowering in the potential with no less mass and no less energy. The energy used to drive any of our great power systems has not been absorbed, it merely sinks back to the place from whence it came, as water over a wheel. There is nothing about this that suggests, perpetual motion, but it is merely a case of the evolution of matter and the evolution of forces. This might be called the economy of the universe, for if it were not so, nature could be accused of squandering her resources of energy so prodigally that nature would eventually end up in bankruptcy, but doubtless in our present theories, we have a very imperfect account of the situation.

If we reverse our imagination on what the telescope has taught us of the stellar universe, we will find that beyond the microscope we have the particles of which everything about us consists, obeying every law that is found everywhere from stellar space to atomic space. We find bodies in motion and when we think how small the proton and electron are, and yet obeying the same laws of the universe, we may see the economical uselessness of science trying to crack the atom, when nature, or call it what you will, is accomplishing the same thing for us in stellar and interstellar spaces. Why do something nature is already doing for us? Let's use what nature offers as I first suggested in 1926 and again in 1931. In the great laboratories of the universe we are having done for us something that far excells in its performance anything that we may hope to accomplish in our laboratories. Why try to do in our small way something which nature is already doing for us? From this conception we might see that Democritus came close to a great scientific truth in his bold statement, when he declared that all physical phenomena reduced itself to one single item — motion, or, as we might repeat, the sonic of the universe. Let me repeat, do not forget the atom is but a counterpart of the universe itself, and that light and other radiations exert a mechanical pressure upon every object they strike, and that all these radiations are essentially electrical in their character. There is a breaking down and a building up of the atom continuously, and it is the evolution of matter and forces which is producing, eternally, unlimited power.

May it not yet be shown that the dissipated energy which results from so much transformation of matter which has heretofore been unavailable — or we should say unused by us where it has only appeared to be unavailable — should now become available to us as an unlimited source of power through the Moray discoveries of application of these forces ?

In the Gamma Rays we find potentials which are equivalent to as much as 2,000,000 volts, yet their wave lengths are not the shortest known to physicists. In octaves still higher lie rays which are known as Cosmic Rays. Who can draw a definite line and say how much higher other octaves exist than those of known Cosmic Rays? Our starting point for the discovery of these different rays was electrical conductivity of the air. It has been discovered that conductivity is just as strong by night as by day, so that radiations emitted by the sun can scarcely be the cause of this energy. May we not, then, accept the theory that the sun, in and of itself, has no energy, but is merely a rebroadcaster of the great generator — the sonic of the universe itself ? That these two, then, matter and energy, are possibly one, is the sum total of all that has been found out during the centuries of constant research, to be judged by that small portion of the universe which is visible to man, who is only armed with his infinitesimal telescopes, or with the most powerful spectroscopes ever made by man.

It is the belief of the writer that all space is saturated with energies which are doubtless electrical in their ultimate energies or very closely allied to electrical action. The relation of matter to energy and energy to matter then becomes the potential of the universe, one continuous series of oscillations, oscillating to and fro like a great pendulum across the universe.

One might ask, "How can one get a steady source of energy from such surges?" Could not a steady flow of water be obtained from the surgings of the sea ?

The history of every major scientific discovery has proven that argumentation on the merits of a discovery, when judged by private interpretation of the scientific facts in question, has proven them all impossible and their discoverer a charlatan.

The above, with all of the other data which has been furnished you in the past, such as my general statements on Transmutation of Metals; Electricity in Medicine; the Patent Situation; the Pictures; and the General Statement on Radiant Energy; Electromagnetic Radiation, written in Los Angeles in 1939, which contains some quotations from my pamphlet, "Beyond the Light

Rays," which was written many years ago and printed in 1931, should be of sufficient help to you in forming a conception of the facts.

If you should need additional information, do not hesitate to request the same.

I would like to further clarify another point. I have not come to you, nor to anyone, trying to peddle Radiant Energy. You came to we in regard to Radiant Energy, and I have tried to help you to understand my conceptions and the facts surrounding the discoveries I have made. If the world wants what they have to offer in Radiant Energy, Transmutation of Metals, Ultra Sonics, and Electro-Therapy, and the other kindred discoveries that I have made, I am more than willing to help them to do so. If not, I can and will work out every problem by myself. With kindest regards.

Most sincerely yours,

T. Henry Moray,

* * *

May 20, 1942.
RESEARCH INSTITUTE, INC.

Salt Lake City, Utah
April 17, 1942.
Dear Mr. ....

Your kind letter of April 14, special delivery, came last night.

Letter writing is such an unsatisfactory method of trying to put one's ideas over, that I hesitate in trying to express myself by letter, but this may serve to review some points in our minds, which, however, from the conversations we have had, I feel are fully understood by you.

As to an explanation of my theories of why the Moray discoveries of Radiant Energy have given the results demonstrated, I have in the past given many complete accounts to men of science and others. The data you have had from me goes into considerable detail proving the fact that the device does all that is claimed for it. Naturally no attempt has been made to give, nor will such information be given, as to why or how the results are obtained. I feel that you readily appreciate the fact that from a standpoint of law and public use patentability and a general safety standpoint, there is a definite disadvantage in disclosures up to the time when one has on file in the United States and desired Foreign Countries all applications which it is desired to file. However, the important thing is that the machine or device operates and therefore at this time theories of operation are unimportant. For instance, the explanation of the "back-rush" effect of condensers should be sufficient to satisfy anyone as to the operation of the condensers in acting as reservoirs for the distribution, of energy. This is equally true of the statements about the device oscillating in harmony with the oscillations of the universe, in face of the evidence of operation which is now in your possession, and the data you turned back to me.

The conversion of matter to energy in the stars is now very generally accepted as demonstrated, and reasoning from what occurs under radio active disintegration, during which energy waves are radiated, we may conclude that energy waves of very high frequency are sent out from the stars, one of which is our sun.

As in the reception of radio waves and radio active waves, so in this the circuit is tuned and by the right arrangement of our own type of special oscillators, frequencies are reduced so they may be made to respond to the right arrangements of inductances and capacities and of a special "valve" of our own construction, to prevent the return of the power to the outer circuit and force it to go through the power application circuit. Ordinarily when a potential is applied to the terminals of a condenser, a full charge is acquired almost instantaneously, but with the Moray oscillators filling up somewhat as when water is poured into a bucket, the longer the energy is applied, the greater the charge taken, up to the maximum capacity for the given potential and frequency. This was explained in the data you had, that these oscillations of energy are picked up by the Moray device and, as stated, these surgings or oscillations of energy are coming and going in a regular beat note of time. This energy has a definite elastic rigidity and density which is subject to displacement and strains. When the strain is removed, this energy will surge back and forth as the waves of the sea and will continue to oscillate as long as the internal impedence is kept within certain limitations and by synchronous actions of the device with the actions of the universe, recovery will be quicker and quicker until inertia asserts itself and the action will become distinctly oscillatory and harmonics set in. Then the oscillations of the device will continue with the oscillations of the universe. As stated, these oscillations are not simple oscillations, but surgings with a definite beat note, elastic rigidity and density.

The leaflets you requested are being sent you under separate cover.

Most sincerely yours,
T. Henry Moray,

* * *

QUOTING FROM "BEYOND THE LIGHT RAYS"

(First Written in 1928 from Notes of 1913 to 1918 and First Printed and Published in 1931)

In writing this very short account of the oscillating theory of the Moray "Radiant Energy" discoveries, one can only touch the high spots as many large books would have to be written to even in a small way cover the subject.

Another difficulty which has hindered man in forming a true picture of the objective world is that mixed blessing — egotism. In early centuries he could not escape from the false assumption of his own preeminent importance, and these same shackles are still prejudicing the observations of most persons.

In reference to electrons, neutrons, protons, and ions: It is my theory in using these terms that they are the energy of the universe, that by some unknown means have become disassociated here and there, and these innumerable infinitesimal particles of electrified particles constitute (by the forces they exert and the disturbances they originate) the substratum of what our senses term as matter, and by nature splitting matter the energy of the universe is born.

Matter is susceptible to motion. Ether is susceptible to stress. All atoms appertain either to matter or energy, and continually pass from one to the other, thus producing kinetic energy. There at its very foundation matter consists of electrical charges which govern the very motion of celestial bodies … i. e., radio active radiations of energy and matter. The evolution of matter and the evolution of forces (energy).

There are ample writings acknowledging that there is unlimited energy in the Universe, but to say one is able to tap this supply is another matter. If I tell you there is water, good cold water, in a glass on your table, but you cannot drink it for a million years, what would you think? You know how to get the water out of a glass. Well, it is as easy to tap this energy now out in space at it will be in a million years from now. If it can be done then, it can be done now.

For me to go into a technical account of how to harness this energy, would mean the writing of volumes. The whole thing might be said in the few words of Nikola Tesla: "Throughout space there is energy. Is this energy static or kinetic? If static our hopes are in vain; if kinetic and this we know it is for certain, then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature."

This I have been able to do through the use of certain valves and oscillators that I have made and of which doctors of science have said are the most powerful devices known to science today. When an elastic substance is subjected to strain and then set free, one of two things happens. The substance may slowly recover from the strain and gradually attain its natural state, or the elastic recoil may carry it past its position of equilibrium and cause it to execute a series of oscillations. In ordinary language there may be a continuous flow of energy in one direction until the discharge is completed, or an oscillating discharge may occur. That is, the first flow may be succeeded by a back-rush, as if the first discharge had overrun itself and something like a recoil set in. The device thus becomes more or less charged again in the opposite sense, and a second discharge occurs accompanied by a second back-rush, the oscillations going on until the energy is either radiated or used up in the heating of the conductors. And if your device will oscillate in harmony with the oscillations of the Universe, or in other words, if the device is capable of synchronization with the vibrations of that energy through space, then the oscillations will go on forever. No one can call such an arrangement perpetual motion any more than one can call the motion of the earth perpetual motion. My device oscillates because of the oscillations of the Universe caused by the disintegration of matter.

Extracts from the notes made in 1918 follow, although they may in a way repeat what has already been given, but are repeated in order not to break the line of thought.

I fully realize that whatever the difficulties in discovering new truths, there are still greater difficulties in getting them recognized, for as Mark Twain said, "It takes twenty years to get a new idea fixed in the human mind," and I should be armed with scant philosophy if I remained for long surprised at the attacks of some, or the exasperation of a certain number of worthy people, and at the silence of the greater number of scholars, who have heard of my experiments.

Heat, light, etc., are not things in themselves, but sensations or effects produced by radiant energy directly or indirectly.

We speak of generating electricity: To be exact, we only transfer it from one place to another, (pump it, if you please). We cannot generate it because we can neither create nor destroy it.. After we have used it to light our homes or do other work, it is like water over the wheel — no less water, only the lowering of potential. The electricity has only sunk back from whence it came, ready and waiting for nature or man to raise its potential, when it again is ready to do man's bidding, or in other words in the evolution of energy it sinks back from whence it came as it is naturally very slowly but steadily being liberated from the ether. Man may by proper means make the process of liberation rapid rather than the natural slow way of nature.

I fully realize elements maintain an equilibrium by rotations, attractions and repulsions, but this does not interfere with a transformation of equilibrium, which when the transformations of equilibrium are rapid enough become heat, light and electricity, or matter is turning into energy and energy into matter.

There can be no production of current electricity without an interruption of equilibrium. Whatever the quantity of electricity it will produce no energy if there is no disturbance of equilibrium, that is to say change of potential or electrical level.

When one thinks of the oxygen and nitrogen molecules of the air all about us moving with the speed of bullets and striking us and everything with this speed, one can form some idea of the agitation taking place in the Universe. The oscillations of the Universe are a part of this agitation, although some of them are from .06 to .0l Angstrom units and shorter, they may be made to do the bidding of man.

The oscillations of these electrons, protons, etc., out there in space are emitting electromagnetic waves of many wave lengths and frequencies. In the Moray device we have one frequency on the high voltage or primary side, and for commercial purposes, the device is so constructed that the frequency is very much lower on the secondary side.
I will now go on to the account promised above on the back-rush effect of condensers and electromagnetic radiation.

But first let me state that all radiant energy is now believed to possess mass or something equivalent to it. Mass and radiant energy are even considered to be interchangeable. I am convinced it is active radiations produced in nature's cyclotrons by the evolution of matter into energy and energy into matter.

Ether demanded by Electric Phenomena — an Electric Charge a Charge of Energy and an Electric Current a Flow of Energy: To account for the propagation of heat and light and other radiant energy — we have postulated the existence of a medium filling all space. But the transference of the energy of radiant heat and light is not the. only evidence we have in favor of the existence of such a medium. Electric, magnetic, and electromagnetic phenomena (and gravitation itself) point in the same direction to gamma rays and the splitting of the atom by nature, the evolution of matter and the evolution of forces, or, in other words, matter turning into energy and energy into matter.

It is a matter of common observation that attractions and repulsions take place between electrified bodies, magnets, and circuits conveying electric currents. Large masses may be set in motion in this manner and acquire kinetic energy. If an electric current be started in any circuit, corresponding induced currents spring up in all neighboring conductors; yet there is no visible connection between the circuit and the conductors. To originate a current in any conductor requires the expenditure of energy. How then is the energy propagated from the circuit to the conductors? If we believe in the continuity of the propagation of energy — that is, if we believe that when it disappears at one place and reappears at another, it must have passed through the intervening space, and therefore have existed there somehow in the meantime — we are forced to postulate a Universe filled with matter and energy.

When a body is electrified, what we must first observe is that a certain amount of energy has been spent; work has been done, and the result is the electrified state of the body. The process of electrifying a conductor is therefore the storing of energy in some way in, or around, the conductor in some medium. The work is spent in altering the state of the medium, and when the body is discharged the medium returns to its original state, and the store of energy is involved. Similarly a supply of energy is required to maintain an electric current, and the phenomena arising from the current are manifestations of the presence of this energy in the medium around the circuit. Formerly an electrified body was supposed to have something called electricity residing upon it which caused the electrical phenomena, and an electric current was regarded as a flow of electricity travelling along the wire, while the energy which appeared at any part of the circuit (if considered at all) was supposed to have been conveyed along the wire by the current. The existence of induction, however, and electromagnetic actions between bodies situated at a distance from each other, lead us to look upon the medium around the conductors as playing a very important part in the development of the phenomena. It is, in fact, the storehouse of the energy.

Upon this basis Maxwell founded his theory of electricity and magnetism, and determined the distribution of the energy in the various parts of the field in terms of the electric and magnetic forces. The ether around an electrified body is charged with energy, and the electrical phenomena are manifestations of this energy, and not of an imaginary electric fluid distributed over the conductor. When we speak of the charge of an electrified conductor we refer to the charge of energy in the ether around it, and when we talk of the electric flow or current in a circuit we refer to the only flow we know of, viz., the flow of energy through the electric field into the wire.

Now consider the case of a body changed alternately, positively and negatively, in rapid succession. The positive charge means a positive polarisation of the ether, which begins at the conductor and travels out through space. When the body is discharged the ether is once more set free and resumes its former condition. The negative charge now entails a modification of the ether or polarisation in the opposite sense. The result of alternate charges of opposite sign is that the ether at any point becomes polarised alternately in opposite directions while waves of opposite polarisations are propagated through space, each carrying energy derived from the source or agent supplying the electrification: Here, then, we have a periodic disturbance of some kind occurring at each point, accompanied by waves of energy travelling outwards from the conductor.

The phenomena of interference lead to the conclusion that light is the result of a periodic disturbance, or vibration, of the ether, but as to the nature of the vibration — that is, as to the exact nature of the periodic change — or what it is that changes, we possess no knowledge. From the foregoing we see that alternating electric charges are accompanied by corresponding changes of state, or vibrations, and if the charge be varied periodically and with sufficient rapidity, we have a vibration at each point analogous to, and perhaps identical with, that which occurs in propagation of light and of other vibrations higher than the gamma rays and beyond.

A SHORT TREATISE ON ALPHA, BETA, GAMMA RAY THERAPY

(1946)

by

DR. T. HENRY MORAY

Science acknowledges that bombardment of matter by swift moving alpha particles has proven a powerful method of studying artificial transformation of the nucleii of a number of the ordinary elements. Evidence is also accumulating that by this method we are able to cause a disintegration of a nucleus of greater mass by capture of the colliding alpha particle.

The above law applied to therapy and other scientific investigation is not beyond possibility. Through the treatment of the cells of the human body artificial transformation or disintegration may take place. The disintegration of fungi and cells gone wild in the body is of value in therapy. Nature can then rebuild with new, healthy tissue and cells. That is what is attempted in Radium and X-Ray therapy and would be accomplished if it were not for the destructive effects of radium and X-ray to living cells. By proper screening and applications of proper amounts of the fast moving alpha rays as also gamma rays and treatment by beta rays (which are electrical in nature) one can obtain beneficial effects in many cases. Valuable results can be had in therapy on living cells if there is no destruction of cells or tissue in trying to effect a cure.

Because the fundamental radioactive process does not originate in the electronic structure of the surface of the atom, but in the center of the atom, deep therapy is possible over a long period of time with the Moray Cosray applicators.

It is an accepted fact that the length of day and night is a very important factor in the growth and development of most plants. The more sensitive plants normally attain their flowering and fruiting stages only when the length of day falls within certain limits. Some respond to a long day while others respond to a short day. That is why we have early and late maturing species depending on the length of day to which they are exposed. Animal cells react also to light rays and to rays beyond the light rays. In this fact we have the basis for light and ray therapy in the treatment of human tissue and cells, the biological effects from radiations to both animal and vegetable cells. There are also effects from radiations on mineral matter. Radiations effect pigments, bacteria, fungi and enzymes. Radiations induce chromosonial aberrations in animals. One will find a real field for therapy advancement in the study of radiation absorptions of tissues and the study of mutations in animal matter. Modern living away from natural radiations, because one is indoors so much of the time away from natural radiations, necessitates artificially supplying various rays. In ray therapy, the problem is generally that of treating diseased tissue below the skin. There are two important problems: First, how to effect relief without injury to the skin, healthy cells and intervening tissue. Second, how to measure correctly the depth dose delivered to the diseased tissue.

With the Moray Cosray ray applicator one may disregard the second problem because that problem does not exist with these applicators. The first problem is a question of time as the rays from these applicators will penetrate through the human body (proven by Geiger Muller Counter tests). These applicators' rays will also penetrate 1/2-inch thickness of lead. The above is given to show the penetrating power of the rays from, these applicators, and yet they will not injure healthy tissues because, of 'the internal phantom characteristics built into these applicators as a patented feature, and the nature of the active material used. The value in therapy of Alpha, Beta and especially Gamma rays in the treatment of epithelial cells and malignancy is too well known to take the time and space here to go into the subject. However, their destructive qualities have been their great drawback, destroying, the healthy surrounding tissue while treatment is being made of the ailing cells and tissue. No special shielding protection is necessary with the Moray Cosray applicators. These applicators may be had in any shape and size to best conform to the application to which they are to be put.

Too little attention has been paid to the, therapeutic value of beta, rays. In most cases great care has been used to filter these out. The Moray method, by proper application, makes use in some cases of these beta rays to the value of the tissue under treatment.

In all forms of gamma ray therapy doses are expressed in Roentgens or "R". In other words, the quantity of gamma radiations received in one hour at a distance of one cm. from a source containing 1 milligram of radium in a 0.5 mm. platinum envelope may be regarded as approximately eight roentgens, or eight "R"s.,

Such procedure, means the application of such therapy requires the close supervision of an expert. With the Moray Cosray applicators no close supervision is necessary as these applicators are not so severe in their reaction, yet they have deep penetrating properties, as explained, and ray therapy value without the danger to the surrounding tissue.

It has been the purpose of this leaflet to explain in a non-technical way a little of the science of radioactive phenomena so that users and prospective users of Moray Cosray ray applicators (Cosray being a trade mark name) will have some idea of the rays these applicators give off.

In the disintegration of these applicators, alpha, beta and gamma rays are emitted. The alpha and beta emanaions are really charged particles, since they may be actuated by electric fields.

Gamma rays, like heat, light and X-rays are electromagnetic waves. Alpha particles are positively charged helium atoms, but possess much greater: energies than the ordinary positive particles. Beta particles are the same cathode particles or are electrons, but are much more active, having the highest velocities of any substance known.

The half life of these Cosray applicators is about 1600 years, so one can see they will be of therapy value through several generations of mankind in the treatment of epithelial cells and malignancy where heretofore Radium and X-rays have been the recommended treatment.

These applicators are the discovery and invention of John Eugene and Richard R. Moray.

For further information write

RESEARCH INSTITUTE. INC.
Salt Lake City 5, Utah

Thomas H. MORAY

Speech at Valley State College, Northridge, California

Many attempts have been made by man to harness the forces of nature to obtain kinetic energy. There are other types of energy besides sunlight which are constantly bombarding the Earth with waves and particles. These surround the Earth in much the same manner as its atmosphere, in the very space in which the Earth exists, Among these are the gravitational and magnetic fields, but these should not be confused with solar energy and the rays commonly referred to as Cosmic rays. Recent discoveries have substantiated these claims. It is not so many years ago that these sources of energy in the Cosmos were unknown or not generally recognized. I am reminded of a statement made by an examiner of the U. S. Patent Office who said, to quote: "No natural source of electrical wave energy is know to the examiner," and he asked for proof of the existence of such energy May I ask the question, "What is proof?", when proof is unacceptable. Many of us would treat any degree of proof in the same frame of mind as the man who said, "I am going to listen tonight with an unbiased, open mind, and with no preconceived opinions, but I won't believe a word I hear." It has rightly been said that one can prove almost everything but the truth.

Some of the features of radiation from the Cosmos make them very attractive as a possible kinetic energy source. They represent the highest energy level known among the existing radiation phenomena. They are practically free from seasonal and daily variations in intensity. They are unaffected by overcast and will penetrate the most dense materials such as rocks and metals with ease. They are coming to the earth from all directions and are rather uniformly distributed, being only slightly more intense in the Polar regions than at the Equator. One must not confuse the electrical energy density with the radiation belt which is thinner at the Poles than at the Equator.

Visible radiations have always greatly attracted the curiosity of man. Luminescent wood, phosphorescent meat, illuminating organs of deep sea fish, fireflies and glow-worms are among the well known wonders of nature. Cold light, on the other hand, the invisible radiations of the Cosmos, while they play an important part in our lives, have not, until recently, attracted the serious attention they should have done. Invisible radiations from the sun and the Cosmos play a part of the greatest importance in our lives. In all types of matter, the utilization of this energy is vital in the evolution of matter and the evolution of forces. Can we name any part of our existence where energy from the Cosmos does not play an essential role?

Our interest tonight is directed to the radiations which I have for years given the name of Radiant Energy. These radiations occur over an extended range of frequencies, and each frequency has its independent "beat note." The extremely high energy gamma rays have deep penetrations, while the lower energies will not pass through the thickness of a fraction of an inch of lead. Alpha and Beta particles have very limited penetration power. Visible light is absorbed by all matter that is not transparent or which has various degrees of opaque characteristics, Radio waves may be completely stopped by a closely woven metallic screen or similar substances, also mountains. All radiations vary greatly from one end of the Energy spectrum to another. I am not trying to tell you anything tonight which you probably do not already know, but I am calling to your attention certain known facts as an introduction to the great energy level of certain forces of the Cosmos and especially to those that are, as Dr. Nikola Tesla said, "kinetic energy," whose existence has only recently been universally brought to our attention. As I previously mentioned, it is not so long ago that the U. S. Patent Office denied the existence of these energies, because no natural source of electrical wave energy was known to the examiner, Such objections are similar to those which have existed from the time man made his first epochal discovery, including that of the finite speed of light.

Tonight I am not going to try to prove anything. In fact, no one can prove anything to those who cannot prove the matter to themselves, I will make certain statements of fact and mention other facts which I and my associates have been able to prove to the satisfaction of ourselves and hundreds of other open-minded thinkers,

There remains the fact that a device has been developed and adequately tested which traps energy from the Cosmos and makes it available in usable kinetic energy. Our intention is to create an interest in this energy which exists throughout space, of which the immortal Dr. Nikola Tesla said, Many decades ago, "Throughout space, there is energy." Is this energy static or kinetic? If static, our hopes are in vain. If kinetic, and this we know it is for certain, then it is a mere question of time until man will succeed in attaching his machinery to the very wheelwork of nature.

Time will not permit me to attempt to cover many of the points of this Radiant Energy discovery. Additional information is given in some detail in the book, "The Sea Of Energy In Which The Earth Floats."

Radiant Energy is a term used by me to designate an energy of the Cosmos based on the Moray concept of the energies of the combined steller spaces. Radiant Energy travels through space with a definite fixed velocity which may or may not be compatible with the theory of the speed of radio waves, visible light, gamma rays, etc.

All radiations exhibit the phenomena of interference. Any form of wave motion can be made to exhibit the phenomena of interference. The beats heard when two tuneing forks of the same frequency are struck are an example. If two or more vibrations are reduced to perfect resonance, which some may contend is an impossible feat, very interesting stages of energy are established. Doctor Tesla obtained a very high form of energy frequency resonance in some of his experiments. Resonance is one of the pre-requisites to capture the energies of the Cosmos. To detect or syphon radiant energy, it is necessary that it be transferred into the familiar potential of the kinetic energy of matter. This transformation obeys the laws of the conservation of energy, that is, the number of ergs of radiant energy received from the Universe is equal to the number of ergs of potential or kinetic energy manifested.

No material substance known is totally and wholly transparent to radiant energy, The mechanism of absorption is a matter of importance in the capture of Radiant Energy,

There are at least three ways in which energy may be transferred with the aid of matter; (1) by the flow or movement of definite masses of matter, such as the tides of the sea or the driving rods on a locomotive or the rotation of matter in a magnetic field; (2) by the wave motions in an elastic or resilient media, such as in air or in the plasma; (3) by material projectiles. The wave theory of radiation is based upon the well-known and understood principle of wave motions as stated a moment ago in resilient materials.

These features enable energy transformers using these radiations from the Cosmos as a primary oscillator to operate by resonnance and by syncronization with the oscillations of the Universe and with relative independence as to the position of the energy transformer and as to season or day or night. It is evident that such a resonator would show possibilities of efficient operation in moving vehicles within the Earth's atmosphere, in space, upon the land, water, and under the water with continuous high powered levels.

Such an energy synchronizer or converter has been built, It has been operated at full load continuously for days without a mechanical prime mover kept alive by the oscillations of the energies from the Cosmos.

This type of energy device is capable of converting the high frequency, high level of the cosmos, kinetic radiations by synchronization, into usable frequencies and voltages. Basically the theory of operation is as follows:

Oscillations by synchronization are started in the first stage of the circuit of the device by exciting it with an external power source such as the difference of potential between two points. The circuit is then balanced through synchronization until the oscillations are sustained by harmonic coupling with the energies of the Universe. The reinforcing action of the harmonic coupling increases the amplitude of the oscillations until the peak pulses "spill" over into the next stage through special detectors or valves which then prevent the return or feedback of the energy from the preceeding stages. These oscillating pulsations drive each succeeding stage which oscillate at a controlled frequency and which are again reinforced by harmonic coupling with the ever present energies of the Cosmos. That is, the first stage drives a second stage, the second stage driver a third and so on. Additional stages are coupled or until a suitable power level at a usable frequence voltage and amperage is obtained by means of special resonant oscillators.

Once the device is in operation and delivering energy, it does not require the continuance of the original excitation induced by the difference of potential between two points to maintain the oscillations. The oscillations are sustained as long as the device remains properly synchronized and the external circuit is completed through a suitable load. This load may be maintained at as low an output as 1/4 watt, The special tubes which are the key to the successful operation of this device are specially constructed ionic, cold cathode tubes.

All energies of the plasma of the Universe have resilient rigidity and density, which is subject to displacement and strain. When a resilient substance is subject to strain and then set free, one of two things will happen, The substance will slowly recover from the strain and gradually obtain its natural state or the elastic recoil will carry it past its position of equilibrium and cause it to execute a series of oscillations. Something of the same sort will also occur when an electrified capacitor is discharged through special high frequency valves. In ordinary language, there will be a continuous flow of electricity in one direction until the capacitor's discharge is completed and the first flow of energy will be succeeded by a backrush, as if the first discharge had over-run itself and recoil will set in. The capacitors thus become more or less charged again in the opposite sense, and a second discharge occurs, accompanied by a second backrush, and these energy surges will continue until all the energy is either radiated or used up in performing the delivery of energy through special oscillators on through the circuit.

When capacitors of very high dielectric capabilities are charged with radiant energy from the plasma of the Universe and then discharged through a circuit of proper impedence, reactance and inductance, and the oscillations of the device are synchronized with those of the Universe and electrical inertia is set up, the oscillations of energy will continue as long as this relationship is maintained. That is, in the reversal of the current the capacitors are charged and discharged and recharged and discharged slowly until the energy originally stored in them is delivered as kinetic energy through the device and, as I stated before, this activity is kept alive indefinitely, not by the mechanical breaking of lines of force, but by the oscillatory breaking of lines of the forces of the Universe through established resonance.

The reason we have to "throw," figuratively speaking, this energy out of balance to utilize these energies in the Cosmos, that is out of positive or negative balance, is to obtain what might be termed an electrically neutral balance to its surroundings. One might express it, "throw the energy out of phase with its surroundings." Another way to look at the same picture is to obtain a perfect balance or as near a perfect resonance with the oscillations of the Universe as is possible, causing an unbalance or excess of either positive or negative electricity in relation to the surrounding material to be charged. This excess of imbalance might be referred to as the point of charge. A rough mechanical example to the electric field of point of charge may be shown by the familiar three dimensional system of ropes. Suppose a charge of positive electricity is fixed in space at some point which we will call "A", Now suppose again a charge of negative electricity is brought to some point we will call "B", the negative charge "B" will experience a force which tends to draw it straight toward "A" as though the two were connected by an invisible stretched elastic cord. The negative charge at point "B" may be anywhere in space in the vicinity of "A" and still it is drawn directly towards "A". That is the relationship which one might use as an example of "A" being the radiant energy device and "B" the energy of the plasma. We may then think, if we like of the space about "A" as filled or made up of stretched elastic cords, lines of force, extending outward in every direction from the charge at point "A". Now if the charge at "A" were given a rapid to and fro motion, it would seem likely that the waves should be formed and sped along the lines of force through space. This is the theory of the manner in which Radiant Energy is propogated. The waves in the electric field about the charge have been set in oscillation and is what causes an associated magnetic field.

Experiment is the best means of determining the variations of intensity with distance in the region of the space closely surrounding the source of finite size. It is known that matter exhibits the curious behavior of discontinuity in processes in which it emits or absorbs energy.

Some, in contemplating Radiant Energy, become disconcerted when confronted with the dual nature of matter and motions. To them science has failed when an unified, unambiguous concept has not been presented, and they wonder why the quantum does not always behave at all like a wave. They ask, "How can we study the motion of a particle from one point to another when we cannot know for sure that the particle was ever at either point?"

Matter is susceptible to motion. The plasma is susceptible to stress. All atoms appertain either to matter or energy and continually pass from one to the other, thus producing kinetic energy. There at its very foundation, matter consists of electrical charges which govern the very motion of celestial bodies. The evolution of matter and the evolution of forces (energy).

There are ample writings and findings of N.A.S.A, now acknowledging that there is unlimited energy in the Universe, but to say one is able to tap this supply to some seems to be another matter.

Through the years of research with Radiant Energy, my attention has been drawn to some of the phenomena of radio-active substances and kindred efforts of research. All our research has been in one main field, that is, rates of vibration, which has led us to many interesting experiments and accomplishments. Not the least of these has been the breeding of lighter as well as the heavier materials by the bombardment of various isotopes with high speed particles. A somewhat similar example may be had in the work being done by a different method in Breeder Reactors that produce more fuel than they consume which makes it feasible to 'burn the rocks,' that is, to utilize the vast supply of thorium contained, not in rich ores, but in rocks such as granite. Schuster pointed out in 1903 that every physical property for one element was found to be shared by all the other elements in varying degrees.

From the University of Wisconsin comes the writings of Doctors Farrington Daniels and Robert A. Alberty on Nuclear Chemistry, on disintegration of radioactive elements. It has long been known that the heaviest metals disintegrate spontaneously, but it is now also known that many lighter metals can be transmuted artificially.

There is much to be learned in the disintegration of the deutron by a photoelectric effect and other mechanism which contribute to disintegration. Analogy is perhaps the most powerful conceptual tool for understanding new phenomena or opening new areas of investigation. Early in this Century, for example, Lord Rutherford and his collaborators conceived the atom as a miniature solar system in which electrons circle the nucleus as planets circle the sun. One finds the same motions of matter and energy beyond the telescope or beyond the microscope. The concept of the electron moving in orbit around the proton to form the hydrogen atom, lead to the prediction that an electron might also move in orbit around its antiparticle the positron or positive electron. The short-lived electron-positron atom.

The Universe of the Atom, if one does not object to such an expression, opens up vast fields of research and potential accomplishments.

The Research Institute has applied original discovery and theory with resultant laboratory practical application to the discovery and breeding of U308, as also the lighter materials. There are many books and articles written on this subject, so I merely mention this field of energy and matter as interesting.

While on this subject of the vibrations of matter, be it in the Universe or beyond the microscopic, let me state that one finds another very interesting discovery for which we must acknowledge the help of Dr. Robert B. Craig, without whose accomplishment in obtaining the original support of a branch of the United States Government for research in Cosray Electric Therapy, this very valuable equipment might never have been given to the public. Also, we might not have made the discovery that the living cell oscillates very similarly to the oscillations of the Universe and can be expressed mathematically, much as the oscillations of capacitors under high frequency current effect.

In the presentation of most new ideas or discoveries, history has proven that the tendency of the human mind is to reject change. The finite speed of light was demonstrated by Roemer, but he was discredited and his discovery was not accepted until fifty years later. The story of the discovery of X-rays is somewhat the same.

In 1828 the school board of Lancaster, Ohio, served notice that the schoolhouse could not be used to debate such things as railroads and telegraphs as they were rank infidelity.
The scientists, in the days when Josiah Coppersmith discovered the telephone, asserted that the telephone was impossible because the human voice, and this was correct, could not be transmitted over a copper wire. The fact is just as true today as it was then, but the telephone still works.

Thomas A. Edison was denounced by the French Academy of Science and his phonograph was called a hoax. They would not even permit a letter written by Edison on his invention of the phonograph to be read on the grounds that Edison was a charlaton!

Mr, Westinghouse, the founder of the now great Westinghouse Electric Company, foreseeing that alternating current was the only answer to the problem of transmitting electric power over long distances, made experimenting with alternating current a specialty. This action was met with great opposition and Mr, Westinghouse was told by "the most eminent engineers of the World" that the alternating system was uncommercial and not worthy of serious consideration.

Dr, Goddard's V2 rocket bombs were rejected until the Germans nearly won a war with them.

The Wright Brothers had to go to England to put their airplane over because it was claimed it was impossible for a heavier than air device to fly.

Hyrum Stevens Maxim, a son of the State of Main, had to go to England, and he was later knighted by Britain for his discoveries which were rejected here.

Charles F. Kettering of General Motors fame wrote, "Some business men believe if you build a beautiful laboratory and fill it with expensive equipment and hire a number of high salaried men with lots of scientific degrees, you will have a fine research organization. No. Facilities are all right in a laboratory, but its the men who count. Just as in a studio, it is the artist who counts, and a good research man, by the way, is an artist. Work in a laboratory may be weeks, months, or years of drudgery. Some of it can be done by the average worker. But when you break through into new territory, enter an unknown door, go down that lonesome road (and no one who has not gone down that road can know how lonesome it can be,) it is THE ARTIST'S POWER OF CREATIVE IMAGINATION which carries you. That is why it is so hard to pick good men for a research laboratory. You may pick top men from the finest engineering and scientific schools. But if they haven't that inner spark, the curiosity, the wonder, the feel of things, they are no good. *** They must have the enthusiasm and latent powers of creation." Dr, Kettering continues "I have no fuss with our colleges — they cram the boys to the gills with knowledge. But I wish the professors would do one more thing. I wish they would teach the boys how little our present knowledge is, how much of that knowledge which seems true today will have to be thrown out of the window tomorrow, how many things which can be proved impossible today, with two slips of a slide rule will be possible and in operation ten years hence," end of quote.

In 1904 a college laboratory had a sign on the classroom wall which read, "All the fundamental laws of physics have been discovered."

Dr. Kettering continued by saying, "In research you need a lot of intelligent ignorance. When you begin to think you know all about any subject, it stops your progress dead in that subject. It is not the things you don't know that hurt you — its the things you think you know for sure that are not so. The electrical people knew that one could not develop an electric self-starter… that was my good luck." "The chief thing we ought to do is to quit being afraid of the change of the future. Change is the law of life. We should work with change instead of being forced into it. All education teaches finality. Business clamors for stability. We are teaching and demanding what the world is not. Our thinking is conventionalized. Anything radically new is cuckoo. "

It was on June 24, 1925, that I discovered that by alloying Germanium with various substances I was able to make a valve for a radio receiver capable of reception of considerable strength without the use of tubes, batteries, or other accessories, which were then considered essential in radio receivers, This Germanium alloying material was used successfully for the detection and amplification of radio signals without the use of any batteries or any outside source of electricity.

An interesting observation of some views of yesteryear is had from another statement from a U. S. Patent Office Examiner, made before the advent of the now new, recognized electrical devices and other technical advances made with semi-conductors in our transistorized day: To quote, "The claims are rejected as being drawn to an apparently inoperative device. It is thought the device will not produce a sensible current, since no means is provided for causing the cathodes to emit an appreciable number of electrons. The current produced in the cathodes by the antenna and ground will not heat the cathodes to a temperature at which an appreciable number of electrons per second are emitted," end of quote. Cold cathodes were not used much those days. Perhaps ionic action in the tubes was desirable. Perhaps, as explained, before a build-up of oscillatory synchronization from the first stage on through the many other stages was another answer, and the examiner did not take into consideration that by rubbing two sticks together one could eventually, if the spark was husbanded from a tiny spark, produce unlimited energy. Especially if a suitable draft of air were introduced little by little into various stages of adding fuel and nursing the flame from an infinitesimal spark to the final combustion. Such an example might help to explain any energy build up.

During the early morning hours of September 3, 1926, I first successfully operated a sound detector device. After months of work in the laboratory, it was possible to "pick up" conversation and music from thousands of feet away from the laboratory. One interesting test was made by and in the presence of Attorney R. L. Judd, his son, Thomas Judd, and E. G. Jensen, all of Salt Lake City, Utah, of what this device would do.

In October, 1929, a scientist from Russia, Dr. A. A. Yakalov came to the laboratory and witnessed tests of the Radiant Energy equipment as well as listening to conversation brought in by the Sound Pickup Device, conversations which were going on some five miles from the laboratory, that is, in the Denver and Rio Grande Railroad Station in Salt Lake City.

By 1936, the Sound Detector Device had been improved to where it would operate radio loud speakers. Up until this time only head 'phones had been used. The signals were brought in loud and clear. An interesting test of both the Radiant Energy equipment and the Sound Detector Device was given to General Shinkle and Captain Deitrick of the U. S. Army in December, 1936. These Army gentlemen, with about eight civilians, witnessed these experiments. The General said he was very much impressed and asked how the Sound Pickup equipment might be obtained for the Government. I told the General I would give it to the Government free of charge, the only requirement being that the government give the device the Moray name. The General said he would report it to his superiors. It was later reported to me and others that an official report had been filed in Washington by the General, but the government did not see fit to accept the offer. This report was made to us by U. S. Representative Thomas Amlie of Wisconsin.

From 1936 to 1938 tests were made at various times with scores of people present of a Radiant Energy radio. This radio, on several occasions, received broadcasts direct from Little America from Admiral Byrd and his party in the Antartic. These broadcasts came in over a loud speaker clear and distinct on occasions when regular radio broadcasting stations reported that interference was so severe they could not receive Admiral Byrd's broadcasts from Little America because of weather conditions.

Radiant Energy devices have been experimented with in all kinds of weather, in all kinds of places, in buildings, out in the mountains, more than 100 miles away from any electric power line; away from all civilization, in the desert, on the earth, in the air, under the sea.

Experts who have seen the Power Equipment in experimental operation have been allowed to examine the device in operation and have torn it down or seen it torn down, dismantled part by part. Nothing that contained electric power could be found, and the conclusion had to be that the power came from the Universe as claimed.

The public was permitted to see experimental tests during these years of testing, When certain phases of experimentation were completed, these public experiments were discontinued. Whenever any important additional discoveries were made which required a great many tests and experiments both in the laboratory and outside at places selected by those who were to help conduct the experiment, scientists and other individuals were permitted to witness these experimental tests. This phase of experimentation was again discontinued at the request of our Washington patent attorneys.

Later, some of the most revolutionary and far-reaching discoveries in Radiant Energy that had been made, required that the device be given a test in an automobile (with no antenna or ground). Such a test was made by a continuous operation run from Salt Lake to Denver, Colorado, and back to Salt Lake City over U. S. Highway 40.

The device, on an endurance test, was operated under standard R. R. seals for a total of 157 hours and 55 minutes, when the seals were broken and the device put under severe strain and tests were made for about an hour longer and then shut off.

Close examination of the device disclosed that all parts were in perfect shape and could have been run indefinitely. During the entire test, the lights burned evenly and brightly without flickering, and there was no change in their brilliancy from day to day.

The quantity of current passing through the secondary of the transformer was sufficient to burn up wire of that size if ordinary current were used, yet there was no heating of the transformer even though there was no circulation of air through it to cool it, as it was completely enclosed in a sealed trunk. All parts of the machine will run absolutely cool, regardless of the length of time operated.

It makes no difference whether one fifty-watt lamp is used or whether a 300 KW load is connected to the machine, the draft of current is adapted to the load. There is not a sound from the machine when in operation, there being no moving parts.

At another time, an experiment was made in the presence of a nationally known physicist, a professor in one of the greatest Universities of the country, at which time he noted and mentioned the following, I quote:

"That when the oscillators are connected in the circuit, the condensors fill slowly, and the longer the current is applied to charge them, the greater the charge they take, up to their maximum for the applied voltage, much as in filling a bucket by pouring the water into it, instead of-taking the charge practically instantaneously as is ordinarily the case with condensors.

"That the globe on one spot is much hotter than is ever the case with any current used at the present time, due to the incondenscence of the gas in the globes under the influence of the very high frequency current, yet the rest of the light globe remained cool.

"That the size of wire in the transformer could not carry the amperage passing through it without burning up, if ordinary current were used, yet all the wires of the device remained absolutely cool no matter how long the machine was operated.

"The above points show that here is developed something which is entirely out of the ordinary and cannot be accounted for on the basis of induction from existing power lines or current from batteries," end of quote.

Many men of science have come from foreign countries and from the East and West and have witnessed experimental demonstrations and not one of them has been able to find any technical fault with what they have seen. These men have had the device opened for their inspection and have pronounced the current as high frequency. They have said that the color of the light was whiter and more intense, yet easy on the eyes, and that the device carried many times as much current, without even getting slightly warm, than any similar circuit could ' have born without burning up.

It is not claimed that all of my theories are proven, but it is claimed and proven that the device works. The results are certain, and, in the absence of a better explanation as given in an early edition of "Beyond the Light Rays," my explanations are as good as any.

Radiant Energy, according to the Moray concept, means energy from the Cosmos, proceeding from a center in straight lines in every direction. Energy may be defined as a condition of matter in virtue of which any definite portion may effect changes in any other definite portion. Energy then is a state of matter or rather the result of a particular state or condition in which matter may be when any observed phase of energy appears.

A member of a noted Patent Law Firm in Washington wrote me, to quote, "I feel that you readily appreciate the fact that from a standpoint of the law on public use, patentability and a general safety standpoint, there is a definite disadvantage in all demonstrations up to the time when you have on file in the United States and desired Foreign Countries all applications which it is desired to file. However, the important thing is that the machine or device operates and, therefore, at this time theories of operation are unimportant. For instance, the explanation of the backrush effect of condensers should be sufficient to satisfy anyone as to the operation of the condensers in acting as reservoirs for the distribution of energy. This is equally true of the statements about the device oscillating in harmony with the oscillations of the Universe, in face of the evidence of operation which is now in your possession and the data you left with me," end of quote.

One difficulty which has hindered man in forming a true picture of the objective world is that mixed blessing-egotism. In early centuries man could not escape from the false assumption of his own pre-eminent importance, and these same shackles are still prejudicing the observations of some of us.

What is needed to prepare Radiant Energy for commercial use? It is necessary to standardize the tubes in order to obtain unified results from every tube. As it is now, we may make one hundred tubes, about two of these may meet all the requirements, the rest may fail to come up to standard. Sometimes none of them will operate as they must to have the critical balance and combined synchronous resonant action required.

There are no ready made measuring instruments we know of which we can purchase from the trade today which will give us a true reading of Radiant Energy Power tube characteristics, Therefore, instruments must be specially made. We have developed some such instruments, but they are not wholly satisfactory, as they do not give absolute readings under the wave lengths and other energy characteristics. In later commercial construction, such instruments will cost about as much as other standard measuring equipment.

Cost of Radiant Energy Power tubes now run quite high for a set of 29, which one unit requires, about $500.00 average for each tube. We must have tubes which will function as valves and some as oscillators and so on; each type tube must be in a certain position in each stage in the circuit, and they will not operate in any other position. They also must synchronize and balance perfectly for resonance.

When in operation, Radiant Energy will require less attention than a good radio to produce 60,000 Watts of energy, with a weight of about one pound per KW. Any number of units may be connected in Delta and Star, as is done in modern power transformer practice. A 60 KW unit will be about 30" x 26" x 14" as estimated from the size of former instruments. It is now estimated, because of present advances in present dielectrics that a 100 lb. unit can be made to deliver 300 KW. gross weight, not net weight. No shielding being required for Radiant Energy devices. Standardization of Radiant Energy offers no insurmountable problems, but it is impossible now to determine the exact time which will be required to develop and prepare for the commercialization of Radiant Energy. I estimate at this time about two years after the necessary equipment is available.

I have said before this evening, that for me to go into a complete account of how to harness this energy would be impractical and impossible at this time. The whole thing might be repeated in a few words quoted before from Dr. Nikola Tesla, to quote "Throughout space there is energy. Is this energy static or kinetic? If static, our hopes are in vain; if kinetic, and this we know it is for certain, then it is a mere question of time when men will succeed in attaching their machinery to the very wheelwork of nature," end of quote.

This I have been able to do through the use of certain special valves and oscillators that I have made and of which Doctors of Science have said are the most powerful devices known to science today, Let me repeat, when an elastic substance is subjected to strain and then set free, one of two things happen. The substance may slowly recover from the strain and gradually attain its natural state or the elastic recoil may carry it past its position of equilibrium and beyond, and cause it to execute a series of oscillations. In other words, there may be a continuous flow of energy in one direction until the discharge is completed or an oscillating discharge may occur, That is, the first flow may be succeeded by a backrush and succeeding backrushes, the oscillations going on until the energy is either radiated or used up in the energizing of the conductors. If your device will oscillate in harmony with the oscillations of the Universe, or in other words, if the device is capable of synchronization with the vibrations of that energy throughout space, then the oscillations will go on forever. No one can call such an arrangement perpetual motion any more than one can call the motion of the earth perpetual motion. The Radiant Energy device oscillates because of the oscillations of the Universe.

We speak of generating electricity. To be exact, we only transfer it from one to another place (pump it, if you please). We cannot generate electricity, We can neither create nor destroy it, After we have used it to light our homes or do all other work, it is like water over the wheel — no less water, only a lowering of potential. The electricity has only "sunk back" from whence it came, ready and waiting for nature or man to raise its potential when it again is ready to do man's bidding. Or in other words, in the evolution of energy, it "sinks" back from whence it came as it is naturally very slowly but steadily being liberated from the plasma. Man may, by proper means, make the process of liberation rapid rather than the natural slow way of nature.

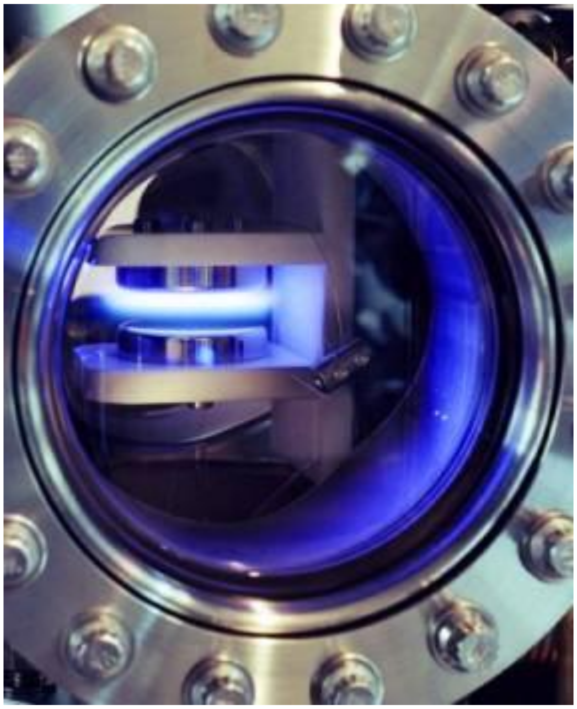
I fully realize elements maintain an equilibrium by rotations, attractions and repulsions, but this does not interfere with a transformation of equilibrium which, when the transformations of equilibrium are rapid enough, become heat, light, and electricity. Matter is continually changing into energy and energy into matter.

Let me again repeat, there can be no production of current electricity without an interruption of equilibrium. Whatever the quantity of electricity, it will produce no kinetic energy if there is no disturbance of equilibrium, that is to say, change of potential or electrical level.

I thank you for your attention and for the opportunity given me of attempting to give you some idea of my concepts of the theory of the principles on which the Moray discovery operates.

Lawrence NELSON

Electron Trap



http://pesn.com/2006/10/16/9500427_Rauen_top_five/

Excerpt from:

"Five of the Most Promising Clean Energy Technologies"

by

Kenneth M. Rauen

(Palo Alto, CA, USA)

Lawrence Nelson's "Electron Trap" ---

"Lawrence Nelson visited NERL in 2003 and demonstrated his invention to NERL, at a time when I was with NERL. I worked with Lawrence for one month and successfully replicated his invention under his supervision, documenting more energy output than the input. Like PAGD (below), his "electron trap" is a vacuum tube technology that derives its energy from the vacuum continuum of space.

"Lawrence told me recently that he has a 1000 watt electric generator running in his laboratory right now, using only 200 watts of electricity input. He is also close to commercialization, but like the others, lacks business experience and funding.

"He is a scientist, a degreed physicist, and he knows what he is doing.

"He is not seeking public exposure but is eager to find funding for his project. Please do not promote his website unless it is done privately for serious interest in funding his company. His device can be as big or even bigger than the Correa PAGD, in my opinion."

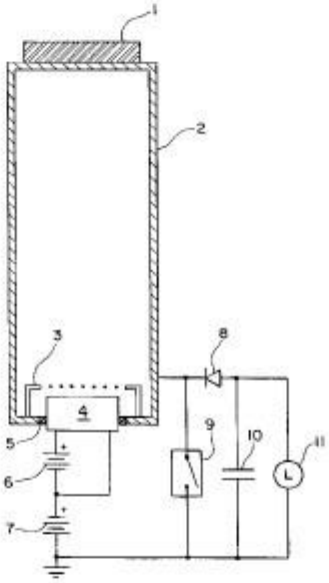
USP # 6,465,965

Method and System for Energy Conversion Using a Screened-Free-Electron Source

Lawrence NELSON

(6-06-2002)

Classification: - international: F24J3/00; G21K1/00; H01J3/00; H02N11/00;
F24J3/00; G21K1/00; H01J3/00; H02N11/00; (IPC1-7): H01J29/98; - european: F24J3/00; G21K1/00; G22H1/02; H01J3/00; H02N11/00B
Application number: US20010822579 20010330
Priority number(s): US20010822579 20010330; US20000254430P 20001211; US19990358746 19990721; US19980093789P 19980723; US20010259967P 20010102



Abstract --- A method and device for providing power to a load are disclosed. A beam of free electrons is directed from a free-electron source, such as an electron gun, into an enclosing conductive surface. The free-electron source includes a cathode, which is maintained at a negative voltage with respect to the enclosing conductive surface. A region around the free-electron source is maintained in a vacuum. The system is configured to switch over a time period between two configurations. In the first configuration, the enclosing conductive surface is isolated from a ground. In the second configuration, the enclosing conductive surface is in electrical communication with the ground. Capacitive energy is discharged from the enclosing conductive surface when in the second configuration with an electrical circuit arrangement and provided to the load.

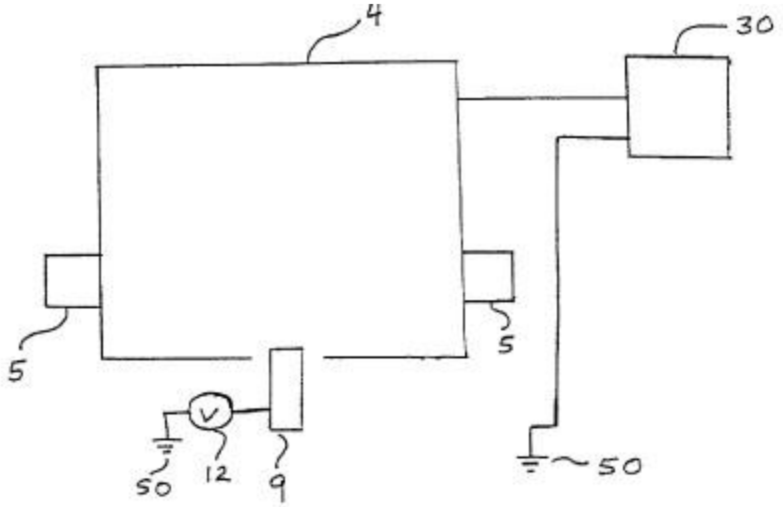
USP Appln. # 2001 040434

Free Electron Condensation Voltage Gain Device

Lawrence NELSON

(11-15-2001)

Classification: - international: H01J3/00; H01J3/00; (IPC1-7): H01J21/00; - european: H01J3/00



Abstract --- The present invention provides a method and apparatus useful for providing a voltage gain as well as for generating energy. The anomalous lack of repulsion observed between unbound electrons is exploited by the apparatus, which comprises an electron gun and a capacitor which is charged by free electrons and is discharged by a circuit. The preferred embodiment additionally comprises a magnetic bottle which is activatable.

Joseph NEWMAN

Gyroscopic Magnetic Particle Motor

KeelyNet.com ---

Newman's Gyroscopic Theory

The theoretical basis of Joe Nemans' Revolutionary Energy Machine challenges many accepted laws of physics.

The starting point for understanding Newman's ideas is his assertion that the fundamental building block of all matter is the gyroscopic particle, an infinitesimal unit of matter that spins like a gyroscope.

Newman claims that the mechanics of magnetism and electricity, which have never been fully explained, can be described in terms of how gyroscopic particles react and interact.

The idea that a single type of particle is responsible for the forces at work in the universe is an old one, yet some of the latest research in physics involves the investigation of particles.

New and smaller particles with previously unknown properties are being discovered on a regular basis.

Newman's theories also depend heavily on the idea that all matter is concentrated energy, which can be released if one has a mechanism for unlocking it.

That notion is at the heart of Einstein's work and the equation E = mc^2, then the argument that he is trying to patent a perpetual motion machine has no merit.

Theoretically, Newman's machine could run indefinitely, but --- according to him --- not because it is CREATING energy to run itself, but because it is converting matter to energy.

In radically oversimplified terms, this is what happens when Joe Newman throws the switch on the Revolutionary Energy Machine:

1) An electrical current is sent through a long (miles long) coil of copper wire, magnetizing it and creating a strong magnetic field.

2) Newman describes the mechanics of the magnetic field as "shells of force" composed of gyroscopic particles that move in a spiral pattern around the wire.
Originally IN the wire, the particles expand outward and thus create the magnetic field.

3) When the particles form a magnetic field, Newman says, they are traveling at the speed of light in two directions --- in the spiral pattern around the wire, and in their own normal gyroscopic spin.

This gives him the right side of the E = mc^2 equation; the particles (mass) multiplied by the speed of light squared.

4) The machine operates in pulses; that is, the electrical current is continually turned on and off. This causes the magnetic field --- in other words, the gyroscopic particles --- to expand and collapse.

5) When the trillions of gyroscopic particles that have been released collapse back into the wire, some of them collide with other gyroscopic particles.

Because of the nature of the gyroscopic spin, the collisions cause the loose particles to bounce off at right angles; those particles emerge at one end of the wire as electrical energy.

***Atlanta Journal-Constitution* (7-13-86)**

Will Joseph Newman's Energy Machine Revolutionize the World?

by

Raad Cawthon

Staff Writer

LUCEDALE, Miss. - In the piney woods southwest of this southwest Mississippi town, off the broken blacktop and two miles down a rutted sand and dirt road, through three gates, past the "Keep Out" and "Beware of the Dogs" signs, smack in the middle of nowhere, sits Joseph Westley Newman, a man who says he can change the world.

In this land where heat devils beat from the ground in waves, Newman says he can bring water to the desert places of the world, eliminate poverty, and improve the quality of everyone's life. If only Newman's enemies will let him. Newman does not look the part of a savior. He sports hair waved across his head in the style of a Baptist deacon.

In the heat Newman is calm, cool and certain. He carries a gaze direct as a laser. He says, "What I have done will revolutionize the world." What has Joe Newman done?

He has built the Revolutionary Energy Machine. His government, Newman's proclaimed enemy, says his machines are frauds. Not so, says Newman. Instead they are the bootstraps by which mankind can pull itself up. Across the tidy, tile-floored workshop from Newman sits a copper-sheathed canister the height and diameter of a fire hydrant.

At the far end of the workshop, swaddled in miles of copper wire, is another machine, a 9,000-pound version the size of a five-person hot tub, its circular rim topped with a circle of light bulbs.

These are two of Newman's Revolutionary Energy Machines, which he knows will free the world from drudgery and make the First, Second, and Third World as one.

It is these machines and others like them, using Newman's same revolutionary theory, that Newman claims produce more energy than they consume. That would allow men to light cities for pennies, power cars without pollution or gasoline, drive machines to make salt water fresh. But it is his own government, represented by the National Bureau of Standards and the U.S. Patent Office, that Newman says is his and mankind's foe.

It is his own government that Newman claims has waged a seven-year war to keep his invention from improving the world. "All I am doing is opening doors," Newman says.

The government, through its unwillingness to grant him a patent, says Newman's machine, which he has invested about $700,000 in developing and defending, does not do what he claims.

"The NBS results show that the device behaves in a manner which is entirely consistent with the well-established laws of physics," says the report, released June 26.

The "well-established" laws of physics say a machine cannot put out more energy than it consumes.

Government report `a mockery of justice' ---

Newman says he knew what the NBS report would show. As a matter of fact, so certain was Newman that he issued a press release before the report became public saying it was a "mockery of justice."

The inventor says he is certain his machine works, can demonstrate that it works, and is willing to defend his machine in public debate against anyone from the NBS or the U.S. Patent Office or any university or anyone who claims to know what he is talking about.

Newman has taken his Revolutionary Energy Machine on the road, demonstrating it in the Louisiana Superdome and in Atlanta.

In each place he challenged an expert on physics to debate his theories in public. Nobody showed up. Newman, who was raised in Mobile, dropped out of high school and left home at 15, went in the armed services, roughnecked in the oil fields, got a degree in accounting and economics, and decided - in his early 20s, after casting around through several jobs - that he wanted to be an inventor.

Over the course of the next two decades he registered patents for several inventions --- a machine to pick oranges, plastic barbells, a new type of knife --- and pursued his self-taught odyssey into electromagnetics.

Etched in the concrete of Newman's workshop walkway is "Question + Thinking = Truth." Newman says that because he is not burdened by conventional teachings, his mind is free to challenge questions without the constraints conventional physicists place on themselves. Newman already has won over a number of physicists, electrical engineers and chemists who have seen his Revolutionary Energy Machine and heard his explanation.

Dr. Roger Hastings, a physicist with Sperry-Univac Corp., has conducted hundreds of tests on Newman's machine. His opinion? "The future of the human race may be drastically uplifted by the large-scale commercial development of this invention," he says.

And Nicholaos Tsoupas, a physicist who works at Brookhaven Laboratory in New York and once taught at Yale University, said, "I know for a fact that many scientists consider his invention unorthodox and unacceptable, possibly because his theories do not fully comport with today's university teachings.

However, Mr. Newman has demonstrated that his invention works the way it claims. The Patent Office should not have denied him a patent." But the Patent Office did.

Newman applied for a patent for his machine March 22, 1979. In January 1982 the Patent Office denied him the patent, claiming his invention "smacked of perpetual motion." Newman appealed the ruling and in 1983 filed suit against the Patent Office.

Federal District Judge Thomas Jackson, who was hearing the case, appointed a special master to evaluate Newman's machine. The special master, William Schuyler Jr., a former commissioner of the U.S. Patent Office, concluded that the machine did what Newman claimed and recommended that a patent be granted.

Jackson, in an action that many people familiar with similar patent cases claim was almost unheard of, refused to accept the recommendation of Schuyler and sent the issue back to the Patent Office for more study.

In October 1985, Jackson ordered Newman to turn his machine over to the NBS for testing. Jackson's order also prevented Newman or any of his representatives from attending the tests. But when the 30-day period passed and the machine had not been tested, Newman's attorney, John Flannery, attempted to retrieve the machine. Jackson ordered it impounded.

After finally testing it, the Patent Office on June 26 issued a report claiming that the machine does not do what Newman says it will. "The Bureau of Standards is coming into this tainted," Newman says, noting that he still has not recovered the machine the NBS has had since 1985. "I have spent 21 years working on this machine and seven trying to get it patented. I am devoted to this."

Why give away a billion-dollar theory?

So devoted is he that he has written a book outlining the secret of his machine. The red-covered, hard-bound book is titled in gold: "Joseph Newman's Revolutionary Energy Machine."

Inside, the pages are packed with diagrams, equations, theories and philosophies on the power of electromagnetics. "Anyone with any knowledge of electromagnetic energy can read this book and build a machine," Newman says.

They also can study Newman's theories about how the weather can be controlled by directing electromagnetic energy and how Newman believes the present educational system trains originality out of children.

Why would someone develop a theory that he claims will change the world, a theory worth billions of dollars, and then give it away in a book? "Because the technical process is 10,000 times more important than the machine itself," Newman says.

He points to his head. "If I keep the knowledge up here, what will happen to it if something happens to me? If you understand the technical process, then you don't just copy what I have done, you can apply it in many different ways."

Newman's machine, if it works, truly could change the face of the world. Energy would be dirt cheap and non-centralized. Multinational oil cartels would be restructured or collapse. Utility companies that have invested billions in nuclear energy would see the plants as costly millstones, dragging them into bankruptcy.

Great stockpiles of coal, as well as the companies that mine it, would lie almost useless. So it is little wonder that Newman, who says he has gotten mysterious, anonymous threatening telephone calls lately, thinks there is a tremendous conspiracy, worldwide in scope, to prevent his invention from coming into widespread usage.

"My machine is a threat in terms of changing the financial structure and the power structure of the world," he says calmly. "I believe this conspiracy goes all the way to the president."

Newman has written every president since Lyndon Johnson stating that this new energy technology was on the horizon. Most of his letters went unanswered, presumably ignored.

However, in 1983 Newman sent Reagan a package of material about his machine. In a letter he asked the administration's help "for the people of the world."

Included in the package was a videotape of the machine that had aired on a New Orleans television news show. Newman got the package back with a form letter indicating that it had not been opened.

But when he opened the package to file the material, Newman found something he had not included. "There was a video review sheet from an office in the White House," Newman says, showing the sheet. "It indicated that not only had the package been looked at, but it had been looked at rather closely."

The review sheet states, among other things: "Some scientists believe this invention could change the world."

"When I called to find out what the review sheet was all about, the fellow at the White House was furious that I had seen it," Newman says. "They wanted to know how I had gotten hold of a copy of that sheet."

A White House spokesman said hundreds of videos are received by the White House annually and that many of them are reviewed by volunteers.

"What is on the review sheet is not the opinion of anyone on the White House staff," the spokesman said. "It is merely a review of whatever is on the tape."

`People are trained not to accept change' ---

But Newman is sure that a conspiracy exists. He leans back in a chair in his workshop and ruminates. "It's strange that they are capping all these oil wells now," he says. "The reasons they are giving, the dropping prices and such, are the same ones you've heard for three, four years. I don't see one factual piece of evidence for this to be happening.

"I'll bet in the last two years, if you could find out who's buying the copper mines, who's buying material for magnets. . . I'd bet you anything that when the wash is out, the oil companies have bought them."

Newman says his machine is not a perpetual motion machine and that it does not create energy, two claims that have hurt its image.

Instead, it is a new way of tapping the electromagnetic energy field that is already there. Very simply put, the machine works like this:

Power is used to rotate two magnets wrapped in copper wire.

The rotating magnets and the atoms that align within the copper wire create an electromagnetic field that can be tapped.

The revolutionary aspect of the machine is that the amount of energy needed to align the atoms and rotate the magnets creating the energy field is less than the energy created. So there is a net gain in power created.

Theoretically, with Newman's technology you could produce an unlimited, self-perpetuating source of pollution-free energy.

"I expect to have one of these machines running a car within six months," Newman says matter-of-factly. The fight for a patent for the Revolutionary Energy Machine has become more than a fight to get an invention patented.

Newman says the battle with the government has given him a new insight into the way people are taught to think in this country.

The battle has defined for Newman a philosophy. "People have been trained, are being trained, not to accept change," he says. "My powers of reason are greater than many people's because my feet are not bound by traditional thought.

Newman sits back and looks out the window of his workshop, past his Revolutionary Energy Machine, out into the pine trees. "To be a good scientist, you have to be a humble person. You have to believe that you don't know everything," he says.

[Unknown Title / Publication]

by

Warren E. Leary

AP Science Writer

WASHINGTON (AP) -- Government engineers say a backwoods inventor's amazing energy machine has a number of unique features but lacks a critical one -- it doesn't work.

The National Bureau of Standards said Thursday that more than two months of court-ordered testing has failed to prove Joseph W. Newman's claims that his controversial machine produces more energy than it consumes.

"At all conditions tested, the input power exceeded the output power," the government's standards-setting agency said in a report. "That is, the device did not deliver more energy than it used."

Newman, who terms himself a self-educated, backwoods inventor from Lucedale, Miss., who used common sense to come up with his machine, immediately rejected the test results as biased and meaningless.

The agency by its own admission used unconventional instruments and methods to reach its conclusions, said Newman, whose quest for a government patent has attracted national attention.

"I do not accept these results at all," Newman said in a telephone interview. "I predicted this decision. It's just another example of the injustice I'm fighting against."

The bureau's report said that because of unusual electrical characteristics of the machine, it had to design a test plan and combination of instruments specifically for Newman's non-standard device. But it said it carefully checked the instruments to assure the accuracy of the tests.

Newman said he would not accept results coming from unconventional testing that could not be repeated by others.

"If I built my own test equipment and said that it proves my machine worked, no one would give me much credit, no one would believe me," Newman said. "But that's what the Bureau of Standards has done and they expect people to believe them."

The inventor has been trying for six years to get the U.S. Office of Patents and Trademarks to issue a patent on an energy machine that defies accepted laws of physics.

Patent examiners say the invention looks like yet another proposal for a perpetual motion machine, one that would produce more energy than it uses so that, theoretically, it could run forever.

This has been the goal of inventors for centuries, but conventional science says it is impossible.

Newman contends his device is not a perpetual motion machine, but a revolutionary energy source that uses the previously unknown magnetic properties of copper coils to release more energy than it consumes.

U.S. District Judge Thomas P. Jackson, presiding over Newman's suit against the patent office, ordered a new trial date after getting results of the tests he ordered from the bureau.

John P. Flannery, Newman's lawyer, said Jackson set Dec. 8 as the date for a non-jury trial to determine if the inventor will be awarded the patent.

Flannery said he asked the judge to permit Newman to examine the special equipment used to test the energy machine, but that Jackson refused to order it. If the Patent Office does not allow examination of the test devices, Flannery said, he would seek another court order to do so.

The Bureau of Standards said that during the testing, it found that Newman's device "behaves in a manner which is entirely consistent with well-established laws of physics."

A device would be called 100 percent energy efficient if it simply transmitted all the energy coming into it back to the outside, the report said, and it would have to show an efficiency of greater than 100 percent to make more power than it consumed.

The bureau said the efficiency of Newman's machine ranged between 27 percent and 67 percent, depending upon the test being run.

Never did the energy coming out of the machine exceed the battery power going into the device to get it running, the report said.

A Description of the Newman Motor

by

Roger Hastings, Ph.D.

This document is intended to provide information regarding the energy device invented by Mr. Joseph Newman of Lucedale, Mississippi. I have prepared the material in response to numerous requests for information. The number of these requests has increased dramatically since Newman's public demonstration of his motor at Washington, D.C., in May, 1985. This paper provides a personal history to date of my involvement with Newman, presents data which was taken at the Washington demonstration, provides an analysis of the data, and presents my current thoughts regarding a mathmatical description of Newman's motor.

HISTORY

I first met Mr. Newman in September, 1981. Newman is an inventor, and he had travelled to Minnesota to present a toy invention to Tonka Toys Corp. My brother, John, was at the time in charge of new products for Tonka, and he interviewed Newman. John and Joe wound up discussing their respective theories of matter and energy, and Joe's motor. At that time, Joe was looking for people to verify the operation of his motor for the patent office. He invited John to Lucedale, but John said that his brother (me) had a Ph.D. in physics, and therefore better credentials to offer for the testing of a motor.

My first reaction to the news of Newman's energy producing motor was quite negative. I had been a professor for four years, and had encountered several people with "world saving" energy devices which they wanted evaluated by the University. In all cases such devices had proven to be inoperative as net energy producers. Newman offered to fly me to Lucedale to test his motor, and I responded that he would be wasting his money and our time because I would certainly prove him wrong. He insisted, and I complied.

The motor that I saw on that first visit was a monument to Rube Goldberg, and to an incredible personal effort at building such a large device. It consisted of five thousand pounds of #5 gauge wire wound as a solenoid. Within the solenoid, a 600 pound ceramic magnet rotated on questionable bearings. The bearings were mounted in a wooden structure. On the shaft of the rotor was a mechanical commutator consisting of three home made wheels, and brushes whose tension was adjusted with rubber bands. The commutator received its power from a bank of six volt lantern batteries. As the huge magnet rotated, the whole structure creaked and groaned. At that time, Newman was taking energy output from a secondary coil wrapped around the motor primary solenoid. I measured the voltage and current input simultaneously on an oscilloscope. The output load was a resistor, and I similarly measured the output voltage and current.

Multiplying voltage and current to find power, I determined that the motor was about 90% efficient.

Newman claimed that his motor was not performing up to par on that day, and said that he would ask me back when he had the device tuned up properly. Although I had proven that the motor at that time was not producing a net energy gain, several aspects of Newman and his motor were fascinating. First, the motor was not designed efficiently. Large mechanical losses were evident, and a 90% efficiency seemed highly unusual. Second, the huge magnet was rotating at some 60 RPM with an input power of only a few watts. Finally, Newman himself, while unconventional, seemed highly intelligent, definately a creative thinker, and intensely dedicated to his scientific work. He informed me that he had evolved his theory and filed for a patent before he had built a prototype motor. (I will discuss his theory later.)

I travelled again to Lucedale and indeed Newman had tuned up his motor. From that point foreward I consistantly measured efficiencies in excess of 100%. At this point I began an effort to attract scientific interest in Newman's motor, and to aid him in obtaining a patent. I wrote several affidavits and documents describing my measurements and generally supporting Newman's efforts. I have spent countless hours of my spare time over the past four years on this effort, withour renumeration. It takes little immagination to understand the benefit to the human race which would result from an economical device which generates energy with no external input. In my opinion, Newman's motor has performed well enough that the scientific community should be showing great interest.

Over the years, a number of generic questions have repeatedly been asked. Is there a hidden energy source? The device can be viewed from all sides, and there are no external connections. The motor has been transported across country, and works equally well at all locations. The motor has been duplicated by at least one other person, who claims that it works. Newman would not be acting in his own self interest to simultaneously invite publicity and commit fraud. It is generally known that Newman is sincere and honest.

Why isn't the motor running itself without the need for batteries? While in concept the motor should be capable of running itself without batteries, the technological problems have not been solved which would allow such operation. In a sense, however, the motor does run itself. The motor has shown the capacity to charge up the batteries which provide voltage to the motor. Tests have been run in which up to 15 amp-hours of output have been drawn from the motor, and in which the six volt lantern batteries powering the motor have shown no evidence of an energy loss (the battery condition was verified in the labs of Ray-O-Vac Battery Co.). Tests have been run in which apparently dead batteries have been connected to the motor. The motor has charged up these batteries to the point where they can power other devices. The same batteries can be drained down (e.g. through a resistor), then be re-connected to the Newman motor and be charged up while they run the motor.

Why isn't Newman's motor powering a home or auto? In my opinion such a demonstration would convince all skeptics, and create a great demand for the motor. Newman has proceeded in this direction. He has built at least four prototype motors to study the effect of varying motor parameters. He has steadily improved upon his large prototype, and has succeded in generating up to about 200 watts of power. By contrast, an average home requires one to three thousand watts on the average, with peak demands of up to 20 thousand watts. In this regard, it would be extremely helpful for establishments with high tech capabilities to aid Joe in scaling up the motor output. His approach has been to reduce the physical size of the motor to make it economical, and the output power. His greatest technical problem has been high voltage switching.

Why does Newman keep his technical process a secret? This question was answered at Washington in May, when Newman revealed the construction details of his motor to the public. He has published a book ("The Energy Machine of Joseph Newman", available from Newman Publishing, Rt. 1, Box 52, Lucedale Mississippi 39452), in which he describes his theory and his motor. Joe had kept the process secret to avoid patent infringement. Although his patent is still pending in the U.S., it has issued in other countries. Presumably his patent rights will be protected in the U.S., although it should be noted that his motor is being copied by others, so that issuance of his patent in the U.S. is of immediate importance. Garland Robinnett of CBS news in New Orleans has run a number of reports on Newman's struggle with the U.S. Patent office.

I do not fully understand why the scientific community in this country has not shown more interest in Newman's motor. He has had support from about 30 independent scientists and engineers, most of whom own their own engineering or consulting firms. He has also received some financial support from investors, who represent a range of interests, including oil and electrical power interests. I know of no one who has observed Newman's motor and taken measurements who has been able to show that his claims are invalid. On the contrary, most observers come in as skeptics, and leave as believers. Over the years my colleagues have consistantly provided me with arguments questioning the validity of my measurements. I have responded to these questions by modifying the measurement proceedures and creating new tests. In all cases the Newman device has passed the tests to my satisfaction. In my opinion, Newman has at least discovered some interesting and unusual new phenomena, and at most has discovered a process which will end man's dependence upon limited and polluting energy resources.

Newman's Theory

by

Roger Hastings, Ph.D.

Transcribed By George W. Dahlberg P.E.

I do not intend to recapitulate the theory presented in Newman's book, but rather to briefly provide my interpretation of his ideas. Newman began studying electricity and magnetism in the mid-1960's. He has a mechanical background, and was looking for a mechanical description of electromagnetic fields. That is, he assumed that there must be a mechanical interaction between, for example, two magnets. He could not find such a description in any book, and decided that he would have to provide his own explanation. He came to the conclusion that if electromagnetic fields consisted of tiny spinning particles moving at the speed of light along the field lines, then he could explain all standard electromagnetic phenomena through the interaction of spinning particles. Since the spinning particles interact in the same way as gyroscopes, he called the particles gyroscopic particles. In my opinion, such spinning particles do provide a qualitative description of electromagnetic phenomena, and his model is useful in understanding complex electrical situations (note that without a pictoral model one must rely solely upon mathematical equations which can become extremely complex).

Given that electromagnetic fields consist of matter in motion, or kinetic energy, Joe decided that it should be possible to tap this kinetic energy. He likes to say "How long did man sit next to a stream before he invented the paddle wheel?". Joe built a variety of unusual devices to tap the kinetic energy in electromagnetic fields before he arrived at his present motor design. He likes to point out that both Maxwell and Faraday, the pioneers of electromagnitism, believed that the fields consisted of matter in motion. This is stated in no uncertain terms in Maxwell's book "A Dynamical Theory of the Electromagnetic Field". In fact, Maxwell used a dynamical model to derive his famous equations. This fact has all but been lost in current books on electromagnetic theory. The quantity which Maxwell called "electromagnetic momentum" is now refered to as the "vector potential".

Going further, Joe realized that when a magnetic field is created, its gyroscopic particles must come from the atoms of the materials which created the field. Thus he decided that all matter must consist of the same gyroscopic particles. For example, when a voltage is applied to a wire, Newman pictures gyroscopic particles (which I will call gyrotons for short) moving down the wire at the speed of light. These gyrotons line up the electrons in the wire. The electrons themselves consist of a swirling mass of gyrotrons, and their matter fields combine when lined up to form the magnetic lines of force circulating around the wire. In this process, the wire has literally lost some of its mass to the magnetic field, and this is accounted for by Einstein's equation of energy equals mass times the square of the speed of light. According to Einstein, every conversion of energy involves a corresponding conversion of matter. According to Newman, this may be interpreted as an exchange of gyrotrons. For example, if two atoms combine to give off light, the atoms would weight slightly less after the reaction than before. According to Newman, the atoms have combined and given off some of their gyrotrons in the form of light. Thus Einstein's equation is interpreted as a matter of counting gyrotrons. These particles cannot be created or destroyed in Newman's theory, and they always move at the speed of light.

My interpretation of Newman's original idea for his motor is as follows. As a thought experiment, suppose one made a coil consisting of 186,000 miles of wire. An electrical field would require one second to travel the length of the wire, or in Newman's language, it would take one second for gyrotons inserted at one end of the wire to reach the other end. Now suppose that the polarity of the applied voltage was switched before the one second has elapsed, and this polarity switching was repeated with a period less than one second. Gyrotons would become trapped in the wire, as their number increased, so would the alignment of electrons and the number of gyrotons in the magnetic field increase. The intensified magnetic field could be used to do work on an external magnet, while the input current to the coil would be small or nonexistant. Newman's motors contain up to 55 miles of wire, and the voltage is rapidly switched as the magnet rotates. He elaborates upon his theory in his book, and uses it to interpret a variety of physical phenomena.

RECENT DATA ON THE NEWMAN MOTOR

In May of 1985 Joe Newman demonstrated his most recent motor prototype in Washington, D.C.. The motor consisted of a large coil wound as a solenoid, with a large magnet rotating within the bore of the solenoid. Power was supplied by a bank of six volt lantern batteries. The battery voltage was switched to the coil through a commutator mounted on the shaft of the rotating magnet. The commutator switched the polarity of the voltage across the coil each half cycle to keep a positive torque on the rotating magnet. In addition, the commutator was designed to break and remake the voltage contact about 30 times per cycle. Thus the voltage to the coil was pulsed. The speed of the magnet rotation was adjusted by covering up portions of the commutator so that pulsed voltage was applied for a fraction of a cycle. Two speeds were demonstrated: 12 R.P.M. for which 12 pulses occured each revolution; and 120 rpm for which all commutator segments were firing. The slower speed was used to provide clear oscilloscope pictures of currents and voltages. The fast speed was used to demonstrate the potential power of the motor. Energy outputs consisted of incandescent bulbs in series with the batteries, flourescent tubes across the coil, and a fan powered by a belt attached to the shaft of the rotor. Revelent motor parameters are given below:

Coil weight : 9000 lbs.
Coil length : 55 miles of copper wire
Coil Inductance: 1,100 Henries measured by observing the current rise time when a D.C. voltage was applied.
Coil resistance: 770 Ohms
Coil Height : about 4 ft.
Coil Diameter : slightly over 4 ft. I.D.

Magnet weight : 700 lbs.
Magnet Radius : 2 feet
Magnet geometry: cylinder rotating about its perpendicular axis
Magnet Moment of Inertia: 40 kg-sq.m. (M.K.S.) computed as one third mass times radius squared

Battery Voltage: 590 volts under load
Battery Type : Six volt Ray-O-Vac lantern batteries connected in series

A brief description of the measurements taken and distributed at the press conference follows. When the motor was rotating at 12 rpm, the average D.C. input current from the batteries was about 2 milli-amps, and the average battery input was then 1.2 watts. The back current (flowing against the direction of battery current) was about -55 milli-amps, for an average charging power of -32 watts. The forward and reverse current were clearly observable on the oscilloscope. It was noted that when the reverse current flowed, the battery voltage rose above its ambient value, varifying that the batteries were charging. The magnitude of the charging current was verified by heating water with a resistor connected in series with the batteries. A net charging power was the primary evidence used to show that the motor was generating energy internally, however output power was also observed. The 55 m-amp current flowing in the 770 ohm coil generates 2.3 watts of heat, which is in excess of the input power. In addition, the lights were blinking brightly as the coil was switched.

The back current from the coil switched from zero to negative several amps in about 1 milli-second, and then decayed to zero in about 0.1 second. Given the coil inductance of 1100 henries, the switching voltages were several million volts. Curiously, the back current did not switch on smoothly, but increased in a staircase. Each step in the staircase corresponded to an extremely fast switching of current, with each increase in the current larger than the previous increase. The width of the stairs was about 100 micro-seconds, which for reference is about one third of the travel time of light through the 55 mile coil.

Mechanical losses in the rotor were measured as follows: The rotor was spun up by hand with the coil open circuited. An inductive pick-up loop was attached to a chart recorder to measure the rate of decay of the rotor. The energy stored in the rotor (one half the moment of inertia times the square of the angular velocity) was plotted as a function of time. The slope of this curve was measured at various times and gave the power loss in the rotor as a function of rotor speed. The result of these measurements is given in the following table:

Rotor Speed Power Dissipation Power/(Speed Squared)
radian/sec --- watts --- watts/(rad/sec)^2
4.0 --- 6.3 --- 0.39
3.7 --- 5.8 --- 0.42
3.3 --- 5.0 --- 0.46
3.0 --- 3.5 --- 0.39
2.1 --- 2.0 --- 0.45
1.7 --- 1.2 --- 0.42
1.2 --- 0.7 --- 0.47

The data is consistant with power loss proportional to the square of the angular speed, as would be expected at low speeds. When the rotor moves fast enough so that air resistance is important, the losses would begin to increase as the cube of the angular speed. Using power = 0.43 times the square of the angular speed will give a lower bound on mechanical power dissipation at all speeds. When the rotor is moving at 12 rpm, or 1.3 rad/sec, the mechanical loss is 0.7 watts.

When the rotor was sped up to 120 rpm by allowing the commutator to fire on all segments, the results were quite dramatic. The lights were blinking rapidly and brightly, and the fan was turning rapidly. The back current spikes were about ten amps, and still increased in a staircase, with the width of the stairs still about 100 micro-seconds. Accurate measurements of the input current were not obtained at that time, however I will report measurements communicated to me by Mr. Newman. At a rotation rate of 200 rpm (corresponding to mechanical losses of at least 190 watts), the input power was about 6 watts. The back current in this test was about 0.5 amps, corresponding to heating in the coil of 190 watts. As a final point of interest, note that the Q of his coil at 200 rpm is about 30. If his battery plus commutator is considered as an A.C. power source, then the impedance of the coil at 200 rpm is 23,000 henries, and the power factor is 0.03. In this light, the predicted input power at 700 volts is less than one watt!

MATHEMATICAL DESCRIPTION OF NEWMAN'S MOTOR

Since I am preparing this document on my home computer, it will be convenient to use the Basic computer language to write down formulas. The notation is * for multiply, / for divide, ^ for raising to a power, and I will use -dot to represent a derivative. Newton's second law of motion applied to Newman's rotor yields the following equation:

MI*TH-dot-dot + G*TH-dot = K*I*SIN(TH) (1)

where MI = rotor moment of inertia
TH = rotor angular position (radians)
G = rotor decay constant
K = torque coupling constant
I = coil current

In general the constant G may depend upon rotor speed, as when air resistance becomes important. The term on the right hand side of the equation represents the torque delivered to the rotor when current flows through the coil. A constant friction term was found through measurement to be small compared to the TH-dot term at reasonable speeds, but can be included in the "constant" G. The equation for the current in the coil is given by:

L*I-dot + R*I = V(TH) - K*(TH-dot)*SIN(TH) (2)

where L = coil inductance
I = coil current
R = coil resistance
V(TH) = voltage applied to coil by the commutator which is a function of the angle TH
K = rotor induction constant

In general, the resistance R is a function of voltage, particularly during commutator switching when the air resistance breaks down creating a spark. Note that the constant K is the same in equations (1) and (2). This is required by energy conservation as discussed below. To examine energy considerations, multiply Equation (1) by TH-dot, and Equation (2) by I. Note that the last term in each equation is then identical if the K's are the same. Eliminating the last term between the two equations yields the instantaneous conservation law:

I*V=R*I^2 + G*(T,-dot)^2 + .5*L*(I^2)-dot =.5*MI*((TH-dot)^2)-dot

If this equation is averaged over one cycle of the rotor, then the last two terms vanish when steady state conditions are reached (i.e. when the current and speed repeat their values at angular positions which are separated by 360 degrees). Denoting averages by < >, the above equation becomes:

<IV> = <R*I^2> + <G*(TH-dot)^2> (3)

This result is entirely general, independent of any dependences of R and G on other quantities. The term on the left represents the input power. The first term on the right is the power dissipated in the coil, and the second term is the power delivered to the rotor. The efficiency, defined as power delivered to the rotor divided by input power is thus always less than one by Equation (3). This result does require, however, that the constants K in equation (1) and equation (2) are identical. If the constant K in equation (2) is smaller than the constant K appearing in equation (1), then it may be varified that the efficiency can mathmatecally be larger than unity.

What do the constants, K, mean? In the first equation, we have the torque delivered to the magnet, while in the second equation we have the back inductance or reaction of the magnet upon the coil. The equality of the constants is an expression of Newton's third law. How could the constants be unequal? Consider the sequence of events which occur during the firing of the commutator. First the contact breaks, and the magnetic field in the coil collapses, creating a huge forward spike of current through the coil and battery. This current spike provides an impulsive torque to the rotor. The rotor accelerates, and the acceleration produces a changing magnetic field which propagates through the coil, creating the back emf. Suppose that the commutator contacts have separated sufficiently when the last event occurs to prevent the back current from flowing to the battery. Then the back reaction is effectively smaller than the forward impulsive torque on the rotor. This suggestion invokes the finite propagation time of the electromagnetic fields, which has not been included in Equations (1) and (2).

A continued mathmatical modeling of the Newman motor should include the effects of finite propagation time, particularly in his extraordinary long coil of wire. I have solved Equations (1) and (2) numerically, and note that the solutions require finer and finer step size as the inductance, moment of inertia, and magnet strength are increased to large values. The solutions break down such that the motor "takes off" in the computer, and this may indicate instabilities, which could be mediated in practise by external pertubations. I am confident that Maxwell's equations , with the proper electro-mechanical coupling, can provide an explanation to the phenomena observed in the Newman device. The electro-mechanical coupling may be embedded in the Maxwell equations if a unified picture (such as Newman's picture of gyroscopic particles) is adopted.

***Science* (10 Feb. 1984), pp. 571-572**

Newman's Impossible Motor

The patent office does not believe that Joseph Newman has built a generator that is more than 100 percent efficient, but New Orleans does.

by

Eliot Marshall

At least one physicist in Louisiana swears that the CBS News anchorman Dan Rather was smiling on 9 January when he reported that an inventor near New Orleans has built a generator that defies the second law of thermodynamics. Others did not see any smile. What they did see, to their surprise, was an earnest but fantastic news story that has been running on New Orleans' biggest television channel being repeated over the network news.

The story is about an inventor, a self-educated Missisippian named Joseph Wesley Newman. He was pleased with the CBS broadcast because it make help him in a fight with the U.S. Patent and Trademark Office, which has denied him a patent on the grounds of his latest invention, "smacks of a perpetual motion machine", meaning by definition it cannot do what it claimed. On 25 June, the U.S District Court for the District of Columbia will hear a suit Newman has brought against the patant office arguing that his device does not aim at perpetual motion but converts mass to energy in a finite but very efficient manner. He simply wants a patent.

Newman's invention is hard to describe, partly because its behavior seems to be at odds with the laws of physics and partly because the details are being kept secret while the ligation goes on. Newman says his own theory of magnetism is "10,000 times more important" than the invention itself, which be built to demonstrate the concept. He claims to have discovered the mechanical principles of a gyroscopic particle of matter that orbits in a magnetic field much as an electron orbits in an atomic shell. Several readers of his theory say it is incomprehensible and would not get attention were it not for the illustrative devices. The patent Newman seeks is for an "Energy Generation System Having Larger Output than Input". Those who have seen it say it is a crude direct current motor powered by a bank of lantern batteries with a heavy, rotating magnet at its center.

Readings of the machine's performance, like those of Dan Rather's expression, depend on the reader. As a result of the TV coverage, the people of New Orleans may be convinced that Newman has invented a simple device that produces more energy than it consumes and could end the world's energy sqabbles if only an arrogant scientific community would pay attention. That is Newman's message. It has been taken up and broadcasted in a sort of crusade by Garland Robinette, the evening news anchorman at the CBS affiliate in New Orleans, WWL-TV.

Last autumn Robinette aired an eight-part series on Newman's device, charging that jealous academics and frightened executives tried to stifle information about it. Robinette concedes that his intense coverage of Newman's began on a slow news day when he was looking for a cute show-closer. He claims he was skeptical at first and saw Newman's invention as a curiosity. But the story soon grew into a "monster that I couldn't let go" when New Orleans viewers, facing a 200 percent increase in utility rates, demanded to know more. Furthermore, a Missisippi state energy offical and a credible scientist had recently vouched for Newman's claims. Robinette says that since he began reporting on the invention, no one has come forward to rebut Newman. He challenges people to come to "get this story off my back".

Newman has benefited from the television coverage and from several weighty endorsements. For example, the television engineers watched him. Last year, Robinette dragged two reluctant engineers on WWL-TV staff to Newman's garage in Lucedale, Missisippi., about 2 1/2 hours from New Orleans. They werde sceptics at first, but, after looking at oscilloscope readings and watching the machine recharge batteries, they agreed with their anchorman that the claims seemed valid.

Engineer Ralph Hartwell described the tests he ran. When he arrived at Newman's House, he connected some weak penlight batteries he had brought along to a small conventional motor in Newman's back yard. It was allowed to run until the batteries were drained of power, taking about 1 minute. He then moved the dead batteries over to the smallest of Newman's demonstration motors, connected them as a power source, and started this motor spinning. It ran until it was time for the camera crew to leave, for something between 1 ans 2 hours. Finally, the batteries were taken fram Newman's machine back to the conventional motor and reconnected. This time the motor ran for about 3 minutes. Hartwell ran annother experiment on a large device and concluded that it also appeared to generate more power than it used. Other measurements were taken with oscilloscopes and current meters, but these readings have been questioned. After signing a confidential pledge, Hartwell was allowed to examine the machine's inner wiring. He is certain that there is no hidden source of energy. Although he feels uncomfortable about it, he says he could not disprove Newman's claim and would like to see a universtity run a controlled test.

Newman's key endorsement comes from Roger Hastings, a solid-state physicist for the Sperry Univac Company in Minneapolis. A colleague who knew him as a postdoc fellow at the University of Virginia says Hastings was regarded as an adventurous and excellent theorist. Hasting's brother, a screener for new ideas for Tonka Toys, met Newman when he submitted an invention to Tonka. Although sceptical, Hastings (the physician) was persuaded to make a trip to Lucedale. "I used to teach physics at North Dakota University", says Hastings, "and we would get three or four people a year who had some kind of device that was going to save the world. I assumed it was the same." Newman talked Hastings into fly down for a visit anyway. He returned five times, testing and retesting the motors, until he was satisfied that he had made no mistake. He eventually signed an affidatvit describing the invention in detail and stating unequivocally that it runs at greater than 100 percent efficency, producing more power than it consumes. "I'm sticking my neck out," he says, "because this is an important issue that should be resolved."

Endorsements such as this are essential for the credibility of the patent application. Although Newman has read the works of the great electrical thinkers Michael Faraday and James Clerk Maxwell, he is not proficent in math or physics.

Newman is collecting seval more endorsements. He claims to have won the backing recently of, a Geman aerospace engineer and a liaison officer between the National Aeronautics and Space Administration (NASA) and the European space consortium. Gerald Miller, a mechanical engineer, student of advanced physics, and electical industiy consultant in California, has inspected the devices and says, "I saw things that I cannot explain in conventional terms." He found that the device produced more energy than it used, adding, "I am absolutely certain that there is no hidden energy source. Milton Everett, a mechanical Engineer and director of the biomass program for the Missisippi Department of Energy and Transportation, says, "I think Joe has discovered something that the world is going to benefit from. It's nor a perpetual motion machine; it converts mass to energy." Excluding inverstors, Newman claims to have about 27 such endorsers.

But there have been and continue to be prominent doubters. Oddly, TV anchorman Robinette has given little attention or credence to the only thorough analysis ever performed on Newman's device. It was aranged by Everett (before he became a full convert to Newman's cause) and was paid for by the Missisippi energy department. Two electrical engineers from Missisippi State University (MSU), --- Karl Carlson and Donald Fitzgerald --- tested one of the Newman's devices last March. The conditions were unfavourable, because the motor kept breaking down every "couple of minutes," says Carlson, as a huge spark from the induction coil shorted out a switch on the commutator. Thus, while it war fairly easy to measure the power going in, it was not easy to tell what was coming out. Newman has built a smaller, less quirky motor since then.

The pattern on the oscilloscope at the output end of a cycle was difficult to read because as one observer says, the discharge spark appeared as "a bright flash" or "a mess" on the face of the screen. Newman sweeps this point aside as a quibble, saying it merely indicates his machine's tremendous power. The efficiency claimed for this device is anywhere from the impossible (slightly over 100 percent) to the fantastic (800 percent and up). A normal electric motor may be 80 percent efficient, Carlson says, and transformers are generally in the 90's. Carlson and Fitzgerald found that Newman's machine was between 55 and 76 percent efficient, based on their reading of the most favourable oscillograms.

They wrote that they found "an output which is definitely less than the input." However, they hedged by saying it was impossible to measure the mechanical energy lost in the machine, which could affect the rating. They declined to call Newman's invention a breakthrough but reported that it was remakably efficient given its "obvious crude configuration." In a standard tag line, they wrote that "further investigation is in order." Newman reads this qualified rejection as a qualified endorsement, explaining when it comes to praising new discoveries, academisc are mean. He speaks of Carlson and Fitzgerald with harsher adjectives.

The physics faculties of Loyola and Tulane Universities, both in New Orleans, have protested Robinette's reports. Daniel Purrington, Tulane's physics chairman, says: "We all dispute it. A number of us have told him [Robinette] we think what he's doing is irresponsible. I talked to him for about 2 hours about the principles involved." Carl Brans, a theorist at Loyola, wrote Robinette a two-page letter of protest. "It's just sensational journalism. In our opinion, it's not worth the cost," to try to take the measurements that would end the discussion.

David Keiffer, an experimental physicist at Loyola, along with other faculty member, offered to check Newman's device if he would bring it to the laboratory. (Newman's patent attorney is a physics graduate of Loyola.) But in the preliminary talks, Keiffer says, Newman insisted that he be present during the entire procedure. Then he and Keiffer got into an argument. Newman packed up and left, never to return. The Loyola physicist also sought to advise WWL-TV's engineers on testing the device, but this proved to be a touchy proposition, because WWL is owned by Loyola and was originally founded by Loyola's physics department. No one wanted the advice to be interpreted as pressure.

"I have a fairly good reputation here," Robinette says of his science reporting, "and this thing just has the potential to make me look like an absolute ignoranmus. So I've tried desperately to disprove this and all I've done so far is get more and more people who are convinced."

What about the negative conclusion reached by the MSU engineers? Robinette maintains (like Newman and Everett) that while the engineers were testing the machine, they agreed that it was producing more energy than it used. But "when they went back, they wrote an ambigous response that didn't say it didn't work and didn't say it did." Robinette mentions that the MSU engineers are retired, as though to diminish their reliability. He finds it "very surprising that they never called to challenge his report, which gave the Newman-Everett version of events.

Some who might otherwis voice scepticism seem to sypathize with Newman because of the way the patent office rebuffed him. In court filings, the patent office concedes that Newman is correct that it rejected his claims without fully reading the documents he submitted; that his application was handled by an examiner --- Donovan Duggan --- who seems to specialize in rejecting perpetual machines; that Duggan said he would not allow a patent on Newman's device, no matter how much supportive evidence was submited; that the office officials never tested the Newman device for efficacy and refused to observe oscilloscope readings of its input and output; and finally, that the office issued a patent 1979 to a man named Howard Johnson for a perpetual motion machine that Johnson since then agreed is inoperable.

If there were an association of militant patent rejectees, Newman's battle with the patent office could be its rallying cause. But there is no such association. However, Newman has done reasonably well attracting attention by himself, especially in New Orleans. In a few months, he will get his day in court.

***Science* (16 Nov. 1984), p. 817**

An Endless Siege of Implausible Inventions

by

R. Jeffrey Smith

In the modern world of commerce, the U.S. patent and trademark office is a street-corner cop with the power to arrest the development of any product that promises the impossible. Its book of statutes contains the basic laws of physics, the axioms of mathematics, the fundamental principles of mechanical engineering. With particular enthusiasm, its employees serve as guardians of the public in a never-ending battle against mechanical devices allegedly capable of perpetual motion.

This, at least, is how they see themselves. Inventors such as Joseph Newman are more apt to view them as "a bunch of narrow-minded people who have conducted themselves outside the federal law and the human race". For more than 5 years, Newman, 48, has been frustrated in his efforts to obtain a patent for an "Energy System Having Higher Output Than Input". In 1982, the patent office told him that because such a device is simply infeasible, his application was denied after something less than a comprehensive, time-consuming review (*Science*, 10 February 1984, p. 571).

Recently, however, with the help of some unexpected scientific endorsements, Newman persuaded the U.S. District Court in Washington, D.C., to order that his application be granted a full review by an examiner --- in short, a second chance. Newman believes that the decision is a slap in the face for the patant office and a partial vindication of his claims. Actually, the dispute reveals how easy it can be for inventors to jerk the patent office around. The ruling, made by Judge Thomas Jackson on 31 October, places the office in the difficult position of determining whether Newman's "energy generation system" -- a powerful electric motor -- is adequately described in his application, and whether it is similar or identical to motors with existing patants. Neither topic was given serious consideration on the first go-around, for reasons the patent office believes obvious.

The decision resulted from an unusual hearing in which a phalanx of attorneys in Newman's employ repeatedly cited patent case law, while Jere Sears, deputy solicitor in the patent office, repeatedly invoked the second law of thermodynamics. In its essence, that law states that the energy produced by a mechanical device such as Newman's will always be less than the energy needed to operate it. In addition to basing the case on "all of recorded science", as Sears put it, he relied heavily on an affidavit from Jacod Rainbow, a former chief research engineer at the National Bureau of Standards and well-known debunker of perpetual motion machines. Rainbow has several objections to the patent application, but his primary claim is that the motor's output of energy has been measured incorrectly. Although he has not seen the device or tested himself, he is willing to bet "any money" that it operates at well under 100 percent efiicency.

As strong as the gouverment's argument was, it was sharply undercut by two affidavits. One was written by Mort Zimmerman, the president of Commercial Technology, Inc., in Dallas. Zimmerman said his 400-person firm "has independently ... constructed, operated, and tested several crude prototype devices based on the Newman invention, and has confirmed for itself that these prototype devices which embody the Newman invention operate and produce power as claimed by Newman" at more than 111 percent efficiency. Zimmerman was enthusiastic enough to purchase an option for the right to manufacture and sell Newman's motor in north Texas. (Recently, he told *Science* that the motor "needs further development for practical utilization, and we're not completely convinced that we can get there.")

The second affidavit was prepared from Lawrence E. Wharton, a physicist in the Laboratory For Atmospheric Sciences at the Goddart Flight Space Center in Maryland. Initially, Wharton, who volunteered his services to the patent office as a sceptic of Newman's claims, vigorously attacked Zimmerman's statement. Shortly before the court hearing, however, he recanted some of his arguments, and declared that the motor's efficiency "is in substantial excess of 100 percent" and perhaps as high as 600 percent, if Newman's measurements are correct. The change of heart came, he said, after Newman argued with him in a long telephone conversation.

Both of these statements apparently made a strong impression on William Schuyler, an attorney and one-time commissioner of U.S. patents who was appointed by the judge as a "special master" to help resolve some of the technical disputes. In his report, Schuyler agreed that the operation of Newman's motor "seems clearly to conflict with recognized scientific principles relating to thermodynamics and conservation of energy." But he insisted ther was an "overwhelming" evidence that the motor's output energy exceeded the external input energy, adding that "there is no contradictory factual evidence." He went so far as to state that Newman was entitled to a patent as long as it did not conflict with any existing patents.

All of this came as a great shock to Sears. It was he, not Newman, who nominated Schuyler. "We felt reasonably safe with a person of his background," he explains. In a final pleading to the judge, Sears asked, "Why are we still paying power bills if Newman has actually achieved his claims? The Court should exercise some common sense and refrain from joining those who apparently believe in the tooth fairy... Manifestly, this court has no power to abrogate a natural law."

In his ruling, Judge Jackson accepted the major points of Schuyler's report, but said he was unwilling to conclude as yet that Newman has produced a "truly pioneering invention." That decision awaits aanother hearing, now set for January. Sears denies that this decision has any implications for the general patent review process. But one effect may be to bar the office from dealing summarily whith such unusual claims in the future -- a development that could sharply increase the examination delays experienced by inventors with more plausible claims.

To Newman, the dispute has become a crusade. Having spent thousands of dollars already in lawyer's fees, consulting fees, and court costs, he will soon pay to publish a book describing both his invention and the patent fight. He says that "the world is fortunate that I'm not afraid of a ruckus, I intend to fight this untill hell freezes over."

***Science* (July 11, 1986), Vol. 233**

Newman's " Energy Output" Machine Put to the Test

by

Marjorie Sun

What's a device with a battery pack, a magnet, and a coil wired together?

For the past 6 years, Joseph Newman, an inventor from Mississippi, has been loudly proclaiming that it's a revolutionary machine which produces more power than it uses. The National Bureau of Standards recently issued its own verdict after analyzing Newman's machine: "In none of tests did the device's approach 100%.... Our results are clear and unequivocal," the bureau said.

Newman has gone to great lengths to try to win a patent on his energy output machine. When the U.S. Patent and Trademark Office indicated in 1984 that the device did not work, Newman sued the agency. He hired a publicist, and the media often portrayed him as an underdog pitted against the scientific establishment. Then the court ordered Newman to submit the machine to the National Bureau of Standards for testing. Newman reluctantly complied.

A physicist and two electrical engineers from the bureau tested the machine in a variety of ways to measure its energy input and output and used instrumentation that is common in research engineering laboratories. The sole power source of the device was 116 9-volt batteries. According to the test results, the device's efficiency ranged from 27 to 67%, depending on the voltage, the power drawn from the device, and the condition of insulating tape on one of the parts. (The tape kept burning from sparks generated by the machine, which caused the efficiency to drop and had to be replaced frequently.)

According to John Lyons, director of the bureau's National Engineering Laboratory, the device basically converted direct current to alternating current. He noted that there are several machines already on the market that do the same thing, but they run at 90% efficiency or higher.

Newman had court permission to observe the bureau's tests, but never appeared for any of the experiments, which were conducted between March and June. His spokesman Evan Soule said Newman will ask the court to order the testing of the test equipment. Newman said in an interview, "I have no respect for the National Bureau of Standards. This is a conspiracy against me."

The testing cost the bureau $75,000, which it hopes to recoup from the patent office. The patent office will submit the results to U.S. District Court for the District of Columbia, which will try the case in December.

Measurement & Analysis of Joseph Newman's Energy Generator

by

Dr. Roger Hastings, Ph.D.

Abstract ~

The author has made numerous measurements on the Energy Machines developed by Joseph Newman of Lucedale, Mississippi. The machines are large, air core, permanent magnet motors. The most important design rule specified by the inventor is that the length of wire in the motor coil be very long; preferably long enough so that the switching time between current reversals is shorter than the time required for propagation of the current wavefront through the coil. Various models contain up to 55 miles of wire, with air core coil inductances of up to 20,000 Henries. The permanent magnet armatures have very large magnetic moments. Thus the motors exhibit high torque with low current inputs. The motors generate large back current spikes consisting of pulsed rf in the 10-20 MHz frequency range. These spikes provide large mechanical impulses to the rotor, energize fluorescent tubes placed across the motor, and tend to charge the dry cell battery pack. The total generated energy --- consisting of mechanical work, mechanical friction, ohmic heating, and light --- is many times larger than the battery input energy.

Newman's theories and machines will be described. Measurements indicating net energy gain from the devices will be presented. A phenomenological mathematical description of the motor will also be presented. Finally, the author will present his personal impressions of Newman's work.

Newman's Theory ---

Joseph Newman is an inventor who lives and works at his home in Lucedale, MS. He became interested in electromagnetic energy some 25 years ago, and began a self-study program. After searching standard texts for a mechanical description of electromagnetic interactions, he concluded that no such description existed. Newman decided that he would have to generate his own mechanical theory of electromagnetism, and over the following several years he evolved his gyroscopic particle theory. This theory, or model states that all matter and energy is composed of a single elementary spinning particle which always moves at the speed of light. The gyroscopic particle has mass, and it can neither be created or destroyed. All energy conversions, in this theory, involve an exchange of gyroscopic particles. E = mc^2 is the expression of this concept, and simply represents an accounting of gyroscopic particles during an energy conversion.

Electric and magnetic fields consist of gyroscopic particles flowing at the speed of light along the field lines. When an electric or magnetic field is created, the particles initially come from the materials which energized the field. For example, when a battery is connected to a wire, gyroscopic particles flow at the speed of light down the wire, and they tend to align the gyroscopic particle flow fields of the electrons in the wire. The electricgyroscopic particle flow field extends outside the wire creating the circumferential magnetic field of the wire. The energy in the magnetic field is Nmc^2, where N is the number of particles in the field, and m is the mass of an individual particle. This energy, or these particles, came from the electrons of the copper.

Thus, Newman considers the current flowing in the wire to be a catalyst which energy to emanate from the atoms of the wire. He claims that he has developed a mechanism whereby field energy can be pumped out of the copper atoms in the wire, thereby reducing their mass without consuming the voltage source which has supplied the catalytic current flow. Since the mass is consumed totally, there is no pollution in this process. One gram mass, if totally consumed,could supply enough energy to power a home for one thousand years. Newman describes his theory and its applications in his book, THE ENERGY MACHINE OF JOSEPH NEWMAN [1].

Description of Newman Motors ---

Newman's motors may be described as two-pole, single phase, permanent magnet armature, DC motors. That is, the armature consists of a single permanent magnet which either rotates or reciprocates within a single coil of copper wire. The coil is energized with a bank of dry cell, carbon zinc batteries. In the rotating models, which will be emphasized in this paper, the battery voltage to the coil is reversed each half cycle of rotation by a mechanical commutator attached to the shaft of the rotating armature. Motor operation is sensitive to the angle at which the voltage is switched, and this is optimized experimentally. On some models, the commutator also interrupts the voltage several times per cycle, creating a pulsed input to the coil.

The coils are constructed with a very large number of turns of copper wire. In all models, the coil inductive reactance is much larger than the coil resistance at operating speed. However, the coil resistance is large enough so that even in the locked rotor condition, very little current flows through the coil. The motors typically draw less than ten milliampere so that small capacity batteries (e.g., 9 volt transistor batteries) can be used in series for the power supply. Self resonant frequencies (frequency at which the coil inductive reactance equals the coil distributed capacitive reactance) are typically on the order of the armature rotation frequency. The permanent magnet armature is very strong, and TIGHT COUPLING TO THE COIL is emphasized in Newman's later models [emphasis added]. His early models used up to 700 pounds of ceramic magnets, while later models used smaller armatures made with powerful neodymium-boron-iron magnets. The commutator is protected by fluorescent tubes placed across the motor. Enough tubes are placed in series so that the battery voltage will not break them down. When the coil is switched, the tubes are lit by the resulting high voltage, minimizing arcing across the commutator.

Newman's motors exhibit the following extraordinary characteristics:

1) High torque is realized with very little input current and very little input power. The battery input power is typically several times smaller than the measured frictional power losses occurring when the armature rotates at its operating speed. His motors are at least ten times more efficient than commercial electric motors (perform the same work with one tenth the input power.)

2) The batteries last much longer than would be expected for the current input. It has been demonstrated that "dead" dry cell batteries will charge up while operating a Newman Motor, and subsequently be able to deliver significant power to normal loads (e.g., lights). The batteries fail by internal shorting rather than be depletion of their internal energy.

3) Significant rf power is generated by the motor (primarily in the ten to twenty megahertz range). The rf is a high voltage relative to ground, and will light fluorescent or neon tubes placed between the motor and ground in addition to lighting the tubes placed across the motor coil. The rf current flows through the entire system, and has been measured calorimetrically to have an rms value many times larger than the battery input current.

EXPERIMENTAL DATA

A large amount of data has been collected by many individuals on the various Newman Motors. While Newman's most recent prototypes are perhaps the most interesting because of their reduced volume, I will present data on his original prototype large machine which has been more extensively investigated. Measured motor parameters are listed below:

COIL PARAMETERS:

Weight .... 9,000 pounds
Copper Wire Length ...... 55 miles
Coil Inductance .... 1,100 Henries
Coil Resistance .... 770 Ohms
Coil Inside Diameter ...... 4 feet
Coil Height .... 4 feet

ROTOR PARAMETERS:

Rotor Weight .... 700 lbs. ceramic magnets
Rotor Length .... 4 feet
Moment of Inertia .... 40 Kg-sq.m.
Magnetic Moment .... 100 Tesla-cu.in

BATTERY PARAMETERS:

Battery Type .... 6 Volt Ray-O-Vac Lantern
Total Series Voltage .... 590 Volts

DYNAMIC PARAMETERS:

Torque Constant .... 15,400 oz. in./amp
Drag Coefficient .... 0.005 Watts/sq.rpm.
Q at 200 rpm 30
Power Factor, 200 rpm 0.03

The torque constant was measured at DC and agrees with calculations. The drag coefficient was measured by plotting the motor speed versus time after disconnecting the batteries. It was found that the decay is exponential with the drag torque being proportional to the angular speed. With the motor operating at 200 rpm, the following measurements and calculations were obtained:

RESULTS: 200 RPM at 590 VOLTS

Battery Input Current .... 10 milliampere
Battery Input Power .... 6 Watts
Rotor Frictional Losses .... 200 Watts
RF Current (rms) .... 500 milliampere

RF Ohmic Losses in Coil .... 190 Watts
Additional Loads .... Fluorescent Tubes
Incandescent Bulbs
Fan (belt driven)

The frictional losses are computed from the measured drag coefficient. The ohmic losses are computed from the coil resistance. Without considering the additional loads, it is seen that the output energy of the machine exceeded the input by a factor of 65!

Oscillograph photos show that the current waveform is dominated by the very large spike which occurs when the magnetic field of the coil collapses. The leading edge of this spike is shown in Figure 1. The staircase current rise is typical of the Newman Motors, with the width of the stairs in all cases being approximately equal to the length of the coil winding divided by the speed of light. Although the average current in the spike is at DC, the actual current waveform under the stairs is pulsing at a frequency of about 13 megahertz. The time average current in the waveform agrees with the calorimeter measurement of the rf current.

Figure 1 [Not shown]. Reproduction of oscillographs showing Newman Motor switching current spike. Spike leading edge is shown with the magnified time base in second and third oscillograph. Rotor speed was 120 rpm.

PHENOMENOLOGICAL THEORY

A phenomenological theory of operation is suggested here, which involves the following sequence of events:

1) The battery is switched across the coil and a current wavefront (gyroscopic particles) propagates into the coil at a speed determined by the coil's propagation time constant.

2) Before the wavefront completes its journey through the coil, the battery voltage is switched open. At this point the coil contains a charge equal to the current times the on-time.

3) When the switch is opened, all of this charge leaves the coil in a very short time, creating a very large current pulse in the coil.

4) The magnetic field generated by this current pulse (gyroscopic particle flow) propagates out to the permanent magnet armature, and gives it an impulsive torque.

5) The magnet accelerates, and the resulting magnetic field disturbance of the permanent magnet is propagated back to the coil, creating a back-emf. However, by the time this occurs, the switch is open so that the back emf does not impede the current flowing in the battery circuit.

These notions agree qualitatively with the measured waveforms. After one-half cycle of rotation, a charge on the order of 0.01 Coulombs will be contained within the coil. From the oscillograph this is seen to be dumped in a few milliseconds, creating a current of several amps. This current continues to flow for some ten milliseconds before decaying to zero.

Newman's Motor can be described by the following set of equations:

(1) J? + F(?) = K(sub t)I sin (?)

(2) LI = RI = V(?) - K(sub i)? sin (?)

where:
J = Rotor Moment of Inertia
F = Friction and Load Torque
K(sub t) = Torque Constant
I = Coil Current
L = Coil Inductance
V = Applied Voltage
K(sub i) = Induction Constant
? = Rotation Angle

The first equation is Newton's second law applied to the rotating magnet, the second is the coil current circuit equation. The voltage is the value applied to the coil within the commutator. If the first equation is multiplied by ? and the second equation is multiplied by I, and both equations are averaged over one cycle, the sum of the resulting equations gives:

(3) <IV> = <?F> + <I^2R> + (K(sub i) - K(sub t) <?Isin ?)

where the brackets indicate a time average over one cycle of rotation.

The term on the left is the power input. The first two terms on the right represent the mechanical power output (combined frictional losses and load power), and the ohmic heating in the coil windings. The last term is zero if the torque constant is equal to the induction constant, as would be the case in a conventional motor. However, as postulated above, if the induction constant is smaller than the torque constant, the last term supplies the negative power.

To view this another way, assume that the input voltage, through the commutator action varies as V = V(sub o)sin (?). If we also assume that the rotor angular
speed, ?, is nearly a constant, w, the following expression applies for the motor efficiency:

<wF> K(sub t)w<Isin ?> K(sub t)w
(4) E = ______ = ___________________ = ___________
<IV> V(sub o)<Isin ?> V (sub o)

The following two equations can now be solved for the presumed constant motor speed:

(5) LI + RI = (V(sub o) - K(sub i)w)sin(wt)

(6) <F(w)> = K(sub t)<I sin(wt)>

The solution depends upon the details of the mechanical load function, F(w). If, however, the torque constant and voltage are both very large (as they are in Newman's Motor), then the angular speed is approximately [2]:

V(sub o)
w apr.= __________
K(sub i)

and the expression for the efficiency becomes:

K(sub t)
E apr.= __________
K(sub i)

If the torque and induction constants are equal, the motor is nearly one hundred percent efficient. If the torque constant exceeds the induction constant, the efficiency* exceeds 100%.

[*Note: the PRODUCTION efficiency can exceed 100% the CONVERSION efficiency cannot exceed 100%]

CONCLUSIONS:

Joseph Newman has demonstrated that his Theory is a useful tool by which predictions of circuit function can be made without mathematics. For example, his gyroscopic particles interact as spinning particles (through the cross product of their spins), and this qualitatively describes magnetic induction. In complicated electromagnetic systems, exact solutions to Maxwell's equations may be difficult or impossible to obtain, while a phenomenological mechanical picture can be visualized to give qualitatively correct results. Mechanical models of electromagnetic interactions were considered essential by scientists of the 19th century. Maxwell originally derived his famous equations by using a mechanical model of the electromagnetic field, and stated the following [3]:

"The theory I propose may therefore be called a theory of the electromagnetic field because it has to do with the space in the neighborhood of the electric or magnetic bodies, and it may be called a dynamical theory because it assumes that in that space there is MATTER IN MOTION, by which the observed electro-magnetic phenomena are produced .... In speaking of the energy of the field, I wish to be understood literally: ALL ENERGY IS THE SAME AS MECHANICAL ENERGY.." [Emphasis added.]

Regarding Joseph Newman's Motor, I have no doubt about its performance or about the profound importance of its future applications.

**AT THIS TIME IT APPEARS THAT THE FIRST APPLICATIONS WILL BE REPLACEMENTS FOR EXISTING ELECTRIC MOTORS. [Editor: Emphasis added.]

Regarding a rigorous mathematical description of the underlying phenomena, it is clear that much effort, both theoretical and experimental, will be required to achieve this end.

REFERENCES:

[1] THE ENERGY MACHINE OF JOSEPH NEWMAN, Joseph W. Newman author, Evan Soule, editor. Joseph Newman Publishing Company, Rt 1, Bx 52, Lucedale, MS 39452 [1st Edition published in 1984.]

[2] The precise condition for this approximation to be valid is that the locked rotor torque be much larger than the applied mechanical torque at speed multiplied by one plus the square of the ratio of inductive reactance and resistance. This condition applied to some of Newman's Motors, and in particular to the most recent small volume devices. In the larger motors the voltage is applied with a phase shift chosen to optimize efficiency, and it can be shown that Equation 8 still applies in the limit of large inductance.

[3] A DYNAMICAL THEORY OF THE ELECTROMAGNETIC FIELD. James Clerk Maxwell, T.F. Torrance, ed., Scottish Academic Press Ltd., Edinburgh (1982). [From Maxwell's Presentation to the Royal Society, 1864).

The above was written by Dr. Roger Hastings, Ph.D., in 1987 for apresentation before a National Conference of the International Tesla Society.

ABOUT THE AUTHOR:

Dr. Roger Hastings has a Ph.D. in Physics, University of Minnesota, 1975; MS in Physics, University of Denver, 1971; BS in Physics, University of Denver, 1969.

Dr. Hastings was a Postdoctoral Fellow at the University of Virginia, 1975-77 with research in organic superconductors and the physical properties of solutions of macro-ions and viruses. Currently, Dr. Hastings is a Principal Physicist with the UNISYS Corporation. As a consultant, Dr. Hastings also designs electric motors for other corporations.

*The latest commutator design enables higher voltages to be utilized.

Note: The above article was written several years ago. The principles described above are generally applicable "across the breadth of the technology." However, considerable improvements to the commutator design have been made in the recent past. These improvements are intended to actually reduce the intensity of the sparking by distributing the physical connections over a wider area. The reader should bear in mind that there are TWO totally different design systems (but many sub-configurations within each basic design): there is one commutator design when the energy machine is intended to function as a GENERATOR and a totally different commutator design when the energy machine is intended to function as a MOTOR. The latest design improvements to the commutator system apply to the machine operating as a MOTOR. Subsequent torque can be utilized for mechanical systems or can be used in conjunction with a conventional generator.

Joseph W. Newman:

South African Patent Application # 831,296

"Energy Generation System having Higher Energy Output Than Input"

Background of the Invention:

1. Field of the Invention ~

The present invention relates generally to devices or systems (including methods for generating useable energy such as for example electrical energy from electromagnetic fields, electrical energy or electromagnetic fields from matter, and more particularly to devices or systems (including methods) for producing electrical current flow for use as electrical power, and magnetic fields of force which cause motion (obvious work), or electrical current flow or for increasing electromagnetic potential energy available for use or mechanical energy available for use.

2. Prior Art ~

There have been many devices proposed over the years for producing electrical energy, with mechanical friction, thermo-electricity, photoelectricity, piezoelectricity, electrochemistry and electromagnetic induction being the chief forms of primary energy capable of producing electricity. Of these, the only significant source of commercial electrical power has been the mechanical actions of electric generators, and for mobile power the chemical action of batteries has been important. Useable motion has resulted from the interactions between the input of electrical energy and the magnetic and/or electromagnetic fields of force (electric motors) and heat or light as a result of input of electrical energy through conventional mechanical systems, heaters, lightbulbs, etc.

All of the prior art systems are designed according to rigid mathematical laws taught both in physics and electrical engineering that coincide with the hypotheses rigidly accepted by the industrial and scientific communities concerning the Second Law of Thermodynamics (1850).

From the foregoing generally accepted hypothesis it has also been generally accepted and rigidly taught in physics and electrical engineering that the electric current flowing in a closed circuit from a battery, electrical generator, etc., is used up in the mechanical device being operated by this flow of electric current, and that all such electric current producing systems would only put out at most work equal to the work initially put into the system, or in accordance with generally accepted laws stating that a particular electrical system was only capable of a given output of energy and no ore.

These beliefs have till this date remained rigid in both the industrial and scientific communities in spite of proof of Einstein's equation of $E = MC^2$. Nuclear reactors convert matter into useable electromagnetic energy in the form of heat, which converts water into steam to turn conventional turbines for production of electric current by conventional electrical generating means. This system is extremely inefficient, using less than 1% of the energy of the atom and producing a deluge of contaminated materials that have caused a serious problem of safe disposal.

Additionally, the basic electrical generators in use throughout the world today utilize the principle of causing relative movement between an electrical conductor (for example a rotor) and a magnetic field produced by a magnet or an electromagnet (for example a stator), all using the generally accepted hypothesis that the greater the electrical conductivity of the material being moved through the field, the more efficient will be the electrical generation.

From the foregoing generally accepted hypotheses, it also has been generally accepted that there should always be movement between, for example, the rotor and stator elements, and that only generally accepted electrical conductors, that is materials with high electrical conductivity, will effectively serve in an electrical generation system.

However, in one of the systems (**Figure 3**) of the present invention, electrical generation can occur with the relatively static elements and with materials that are not generally considered to be of high electrical conductivity, although of course the present invention likewise can utilize relatively moving elements as well as materials of generally accepted high electrical conductivity, if so desired, as occurs in the systems of the present invention illustrated in **Figure 5** and **Figure 6**.

The prior art has failed to understand certain physical aspects of matter and the makeup of electromagnetic fields, which failure is corrected by the present invention.

Brief Description of Drawings:

For a further understanding of the nature and objects of the present invention, reference should be had to the following detailed description, taken in conjunction with the accompanying drawings, in which like parts are given like reference numerals and wherein:

Figure 1 is a schematic, side view in generalized, representational form of a first embodiment of an electrical generator based on the principles and guidelines of the present invention.

Figure 2 is a close-up view in general form of an electrical charge pickup element that can be used in the generator illustrated in **Figure 1**.

Figure 3 is a schematic view in generalized, representational form of a second embodiment of an electrical generator based on the principles and guidelines of the present invention.

Figure 4 is a schematic view in generalized, representational form of the negative and positive particles exhibiting gyroscopic actions that emanate from a magnet to form an electromagnetic field.

Figure 5 and **Figure 6** are schematic views in generalized, representational form of third and fourth embodiments of a combined electrical generator and motor utilizing a static, relatively large coil energized by a relatively low current driving a rotatable magnet, wherein the embodiment of **Figure 5** the rotatable magnet is positioned along side of the coil and in the embodiment of **Figure 6** the rotatable magnet is positioned within the open core of the coil.

Detailed Description of Preferred Embodiments

Basic Principles & Guidelines ~

In accordance with the principles of the present invention and as generally illustrated in **Figure 3**, an electromagnetic field 10 comprises flows of quanta or particles 20, 30 of electrical energy flowing from each of the poles 21, 31 of a magnet (or electromagnet) 40 to the other pole, following the "lines of force" 11 of the electromagnetic field. These particles 20, 30, believed to be traveling at the speed of light, are always coming out of one end 21, 31, respectively, flowing from a relatively high-energy source to a low-energy source.

These particles 20, 30 are, it is believed, negative and positive charges and have a spin producing a gyroscopic motion and follow the mechanical laws of gyroscopic action. The mass of each of the particles 20, 30 equals the energy of the particles divided by the speed of light squared. The peripheral speed of the gyroscopic particles is believed to be the speed of light.

For purposes of illustration only and as a matter of nomenclature, the positive charge particle 20 is going in one direction (N to S) with a clockwise spin, and the negative particle 30 is going in the opposite direction with a counter-clockwise spin. Of course, if a particle such as 20 or 30 is flipped around 180 degrees, it becomes the opposite charge or type of particle.

The electromagnetic field 10 is thus the orderly flow of the positive and negative charges 20, 30, moving at the speed of light from the north and south poles 21, 31, to the south and north poles 31, 21, respectively, and follow the paths of what is termed in the art as the lines of force 11 of the electromagnetic field 10.

As is known from the laws of gyroscopes, a gyroscopic particle or body moves at right angles to the direction of an applied force. Therefore, when a force is applied to the electrical energy particles 20,30, they will move at right angles to that force.

It should also be noted from known gyroscopic laws that the electrical energy particles 20, 30, when they move with their gyroscopic axis straight into an object, tend to knock that object straight, but if that object hits the particles at an angle to the axis other than at zero or 180 degrees, the particles are moved off at an angle from the straight.

Additionally, it is noted that a magnetic field caused by a current flowing through a wire comes from negative and positive particles, such as 20, 30, with a net flow of such particles going in the same direction but with opposite spin.

In the system and method of the present invention, the foregoing principles serve as guidelines in the present invention.

Reference is further had to pages DD23 through DD27 of the Disclosure Document and to Page 8, Line 26 through Page 11, Line 23 of the prior Application Serial number 25,907 and its Figures 7-10.

From the foregoing disclosures, many different devices, structures, and methods are possible to embody the principles and guidelines of the system of the present invention, which in general will utilize a material or substance or structure to place a force at the proper angle to the gyroscopic particles 20, 30 wherein the particles 20, 30 follow a path or paths which do not cancel one another out, thereby producing electrical current at appropriate outputs for further use or for increasing available potential electrical for ultimate use

First Embodiment (Figure 1) ~

One possible, exemplary embodiment using the principles of the system of the present invention is schematically shown in the generalized illustration of **Figure 1**.

As illustrated in **Figure 1**, there is provided an electrical current generator 100 comprising an outer keeper housing 115 and an inner, pressure-containing, closed housing 116 supported therein by insulated supports 105. A vacuum exists in the area 106 between the two housings 115, 116, which vacuum is regulated and induced by means of the vacuum line 104 with its gauge 107 and its control valve 108. The outer housing 115 acts as a keeper for magnetic fields of force, and can be made for example of soft iron, while the vacuum in area 106 prevents the leakage or discharge of static electrical charges that might build up on the exterior of the inner housing 116.

A gas or gas-liquid mixture 117 which may also include solid particles such as for example lead or brass filings, is included within the inner housing 116 surrounding a series of aligned magnets 120 carried by insulating braces or supports 121 and producing a high, combined electromagnetic field. The magnets 120, which can for example be cryogenic magnets, have their "north" and "south" poles aligned (as illustrated by the "Nn" and "Ss") so that their magnetic fields reinforce one another.

The level of the gas or gas-liquid mixture 117 in the housing 116 is regulated by means of the line 122 with its gauge 123 and control valve 124. Electric current output wires 119 are provided and extend down to electrically connect with a wire pick-up system 118 (shown in close-up in **Figure 2**), which can for example be in the form if very small wires forming a closely spaced network or mesh or of a porous conducting metal body or sheet, located in and extended throughout the fluid 117 in the housing 116.

It is noted that a thimbleful of gas contains a fantastically large number of extremely tiny bodies that are in continuous, random motion moving at extremely high speeds. Hence, the fluid 117 continuously applies a force to the gyroscopic particles (analogous to particles 20, 30 of **Figure 3**) moving at the speed of light in the high electromagnetic field (produced by the magnets 120) as they continuously collide with each other, which results in the fluid 117 becoming electrically charged. The charged fluid 117 discharges its electrical charge to the pick-up wire network 118 positioned in the fluid, and the electric current so produced and generated is taken off for use via the electrical output wires 119.

As an alternative to having internally contained magnets 120, the electromagnetic field needed in the fluid 117 could be produced by a source located outside of the confines of the fluid 117 as long as the significant field was produced within the fluid 117.

Second Embodiment (Figure 3) ~

A further exemplary, generalized embodiment utilizing the principles of the system of the present invention is shown in schematic form in **Figure 3**.

The electrical current generator 200 of **Figure 3** comprises an extended member 201 of a special material having its atoms especially aligned to produce electric current when positioned in an electromagnetic field but which does not on its own exhibit any substantial magnetic field outside of its boundary surfaces but substantially contains the filed within itself. This is in contrast to "magnetic" materials which likewise have atom alignment but which also exhibit or produce a substantial magnetic field in the area surrounding it.

The generator 200 further comprises for example two magnets 202, 203, with their north and south poles facing each other, with the member 201 positioned between them, and with the three elements 201-203 held static with respect to each other. Because of the special nature of the material of the member 201 and its special atom alignment, it will produce a direct current through output line 204 as a result of the gyroscopic actions of the particles of the electromagnetic field 205 produced by the facing magnets 202, 203, on the specially aligned atoms in member 201, which phenomenon occurs even when and even though the member 201 is completely static with respect to the magnets 212, 203. It may be desirable in some applications, however, to allow or produce some relative movement between the generator elements 201-203.

The output line 204 extends to an appropriate "load" 206 for using the electrical current generated by the generator 200. A return line 207 completes the circuit back to the member 201.

Based on experiments to date, it is believed that brass and lead are materials that can have their atoms especially aligned to interact with the gyroscopic particles (analogous to particles 20, 30) flowing between the magnets 202, 203 and will substantially contain within their surface boundaries the magnetic field produced by the aligned atoms or molecules.

With respect to producing the proper material with atom alignment for the member 201, it is noted that most materials seem to align their atoms in random directions when formed by conventional methods of production. It can be observed, however, that certain materials can be made magnetic by putting the material in an electromagnetic field while cooling from a temperature of around 1000 degrees C. The magnetism is the result of atom alignment of the material in a given direction (See pages DD19 through DD21 of the Disclosure Document). All materials are affected so as to align parallel or across lines of force when in a powerful electromagnetic field. Accordingly, if a material while being formed is cooled in an extremely powerful electromagnetic field, the atoms of the material will take on a particular alignment. The atom alignment direction could be varied depending on whether the electromagnetic field was aligned with the material or at a 90 degree angle to the material. This would result in the atoms of a material having their particular electromagnetic spin direction primarily along the same axis.

Merely having atom alignment, however, is not sufficient. Additionally the material for the invention should be such that it exhibits very little if any magnetic field in the area surrounding it. Thus it should be noted that the exterior electromagnetic field that occurs from the atom alignment of the conventional magnet is not duplicated in the material of the invention, because the electromagnetic energy resulting from atom alignment in the material of the invention will be primarily contained within the boundaries of the material. It is believed that lead, made super-conductive by immersion in a bath of liquid helium, for example, is such a special material and cold serve as the material for member 201.

This then results in having a material that would place a force at the proper angle on the gyroscopic type particles moving in the electromagnetic field so as to cause an EMF to be produced even when the material was sitting still (See also the first paragraph of page DD23 and paragraphs 4, A through E, of page DD19 in the Disclosure Documents).

It is believed that high, contained pressures, as well as other methods, can also probably produce atom alignment as the atoms of a conductor or any material will react to sufficient external force (See the first paragraph of page DD35 of the Disclosure Document). This possibility also is indicated by the fact that hard knocks or impacts will demagnetize a magnet.

The proper procedure of material production in achieving atom alignment with internally contained fields of force will cause the controlled release of electrical energy in electromagnetic fields of force when the material of the invention is placed in the lines of force of the electromagnetic field.

Third & Fourth Embodiments (Figure 5 & Figure 6) ~

A. Related Principles ~

(1) Numerous scientific tests and experiments made by the inventor indicate that the magnetic field resulting from an electrical current flowing through a conductor is the result of atom alignment within that conductor at an extremely fast speed with an ability to reverse atom alignment just as rapidly without the magnetic hysteresis associated with conventional materials considered "magnetic". Prior to this time it has been believed and taught by the scientific community that the magnetic field associated with an electric current carrying conductor was the result of the electric current itself and not of the conductor material, for example copper, which was considered to be "non-magnetic".

Even the inventor was influenced and misled by these teachings and attempted to mechanically explain and justify the prior teachings, as is seen on page DD27 of the Disclosure Document, which is an important part of this patent application.

As taught in the present invention, however, what mechanically happens is that the gyroscopic particles making up the electric current moving in a conductor interact with the electromagnetic makeup of the atoms of the conductor, causing them to align extremely rapidly, thereby then releasing some of their electromagnetic makeup in the form of a magnetic field exactly as explained in great detail for conventional magnetic materials in the Disclosure Document.

This is easily proven and understood by taking for example a size 14 gauge conductor one foot long, winding it into a coil, and connecting the coil to a meter and a 1.5 volt battery. The total current registered on the meter will be 1.5 volts and the strength of the magnetic field created from the short conductor will be extremely small. Next, the same type of test is run again but with the length of the conductor increased to 2000 feet, for example. The total current registered on the meter will now be considerably less, but the strength of the magnetic field given off from the conductor will now be extremely large!

This shows that the magnetic field is not from the electric current flow, but is the result of the interaction of the gyroscopic particles that make up the electric current interacting with the atoms of the conductor! This causes the gyroscopic particles of the electric current not to be able to make the circuit back to the battery so quickly, and therefore the meter shows less current used.

The magnetic field is the result of the atom alignment of the conductor. The more atoms in a conductor (up to a point), the stronger the magnetic field produced from a given amount of electric current input. Again, this is proven by changing the diameter of the conducting wires and, with the lengths being the same, the strongest magnetic field will result from the conductor with the largest diameter. The reason for this is that there are more conducting atoms to interact with the gyroscopic particles of the electric current moving through the conductor, which results in a greater number of conducting atoms being aligned, thereby then releasing some of their electromagnetic makeup, exactly as has been explained in great detail in the Disclosure Document as being possible for all matter.

If the magnetic field produced was strictly based on the amount of current going through a conductor, as taught in the prior art, then the strongest magnetic field would result when current went through a large diameter and short length conductor, because the current flow through the entire circuit is greatest at that time. However, experiments prove that the shorter a conductor is made, the greater the current flow through the entire circuit and the less strength of the magnetic field surrounding that conductor. The longer that same conductor is made (up to a point), the greater the magnetic field surrounding the total mass of the conductor and the less current that makes the complete circuit of the entire system. Reason: more atoms!

(2) Numerous scientific tests and experiments made by the inventor also indicate that the magnetic field created when an electric current moves in a conductor does not use up measurable energy when performing obvious or unobvious work, force or power. This is true no matter how strong or how immense the power of the motor or electromagnets is. Reason: the magnetic field coming from the conductor is the result of extremely quick atom alignment within that conductor. Therefore the energy in the magnetic field is the energy that makes up the atom of the conductor! This energy is literally Einstein’s equation of $E + MC^2$, and therefore the energy is believed to be moving at the speed of light. This energy use cannot be measured by today’s

measuring instruments. This has been explained in great detail in the Disclosure Document and is believed to be true of all matter.

(3) The same is true for the electric current that comes from a conventional battery. The electromagnetic energy coming from the battery is the energy that makes up the atoms of the material of the battery. Again, this energy use is not measurable by today's measuring instruments. Electric meters of all types are simply mechanical devices that measure the amount of electric current that comes into that instrument. They do not measure the amount of mass that has been converted into electromagnetic energy.

Present technique in science states that the electric energy flowing from a battery is used up in the device operated by that flow of electric current. This is not true at all! The electromagnetic energy released from the atom makeup of a battery has a relatively infinite capacity to do obvious work, force, or power.

This is easily proven even with a small motor and a 1.5-volt battery. With a battery connected to the motor to operate it and with a meter to take readings, the motor is then physically stopped from turning by holding or restraining the shaft. At that moment the motor is performing no obvious work, force or power, but the meter will register a greater flow of current. The magnets of the motor can be taken out and the reading will be the same. If the electricity was being used to operate the motor, the meter would register more current when the motor was running.

The electric current not only will operate the motor but, once it flows through the complete circuit back to the battery, it also does additional work based on Faraday's Laws of Electrolysis within the battery itself. What has happened is that the electromagnetic energy released from the atoms of the material of the battery, once they have completed the circuit, then take a "short cut" and move large pieces of the mass of one material of the battery over to the other material of the battery. The inventor has stated and shown throughout the Disclosure Document that the effect of gravity was the unobvious effect of electromagnetic energy. Once the materials of the battery have combined, the extreme desire for the two materials to merge is physically reduced. These materials will attempt this merger in any way possible and, if the electric current initially released from a battery is not allowed by mechanical means to complete the circuit back within itself, the electromagnetic energy then in the mechanical means will perpetually (in a relative, theoretical sense) perform obvious work, force or power. The reason: the force that initiated this flow of current (electromagnetic makeup of atoms of material) is constant, similar to hydraulic pressure, with the noticeable exception that it is moving (it is believed) at the speed of light and will interact with the electromagnetic makeup of the atoms of other materials, causing them to release some of their electromagnetic makeup in the form of a magnetic field. This then multiplies the capacity for doing obvious or unobvious work, force or power, which can then react with another conducting coil or with the electromagnetic energy within the magnetic field or a conventional magnet and multiply this effect even further, on and on for a relatively unlimited source of energy.

The same is true in not letting the current get back to a conventional generator. If a mechanical means is set up so that the electric current is "trapped" without completing a circuit, the gyroscopic particles of the current have a capacity for continuous work without increasing the power input into the generator system. If, however, the circuit is complete and the electric current moving in the system does absolutely no obvious work, power or force, the gyroscopic particles making up the current and retuning to the generator will then increase the need for more power input into the system. The reason is in the opposing effect of magnetic fields as defined in Lenz's Law. This law is simply an observation of this effect, which before now has never been fully understood.

4. Numerous scientific tests and experiments made by the inventor also indicate that there is a correlation between the electromagnetic spin orientation of the atoms of non-conductors, semi-conductors, and conductors, and the varying results achieved with an electric current in attempting to move through these materials, or when moving these materials through a magnetic field attempting to induce electric current.

The gyroscopic particles in a moving electric current interact with the atoms of the material through which the current is moving. Each atom can efficiently interact with only an exact amount of electric current, and if exceeded, there is an interruption of orderly movement. Then the angle of release of the gyroscopic particles from the atoms are such that the electromagnetic release of the gyroscopic particles are such that the electromagnetic release from these atoms are in the form of heat, exactly as explained in great detail in the Disclosure Document. This effect is easily observed by the fact that the resistance decreases relative to an increase of the cross-section of the material. Reason: more atoms are within that given area, and for a fixed input of electric current there are more atoms to receive and interact efficiently with the gyro-particles making up the electric current.

Again, the same is true for resistors designed for deliberately producing heat. Such resistors are not materials that are considered to be good conductors of electric current. It is stated and shown in great detail in the Disclosure Document that the electromagnetic spin orientation of the atoms of a non-conductor are different from that of conductor atoms, and therefore different results will occur from the same inputs of electromagnetic energy.

This is easily seen by the fact that, in a resistor, for a given amount of electric current input, the heat release increases as the diameter increases. What that means is that the property of resistance has decreased. On a conductor it is just the opposite. If the diameter is increased the resistance is decreased, but so is heat release. Again, this is an indication that the gyro-particles in the electric current movement interact with each atom of the material.

This same effect shows up again in conventional electrical induction from a conductor interacting with a magnetic field.

Experiments by the inventor have indicated that the property of conventional induction is the result of the same property of resistance.

If one increases the diameter of a conductor, lengths staying the same, one decreases the amount of electric current relative to the total number of atoms within the conductors under consideration. Or, if one takes a given number of wires of the same diameter and length and moves a magnet across them, the current produced will be considerably less than if one takes the same diameter wire, but only one wire, and increases its length considerably and then forms it into a coil forming the same number of wires on any one side and then moves the same magnet across only one side of that coil; the electric current generated will then be considerably greater. Reason: the property of resistance. This is a mechanical effect within the gyroscopic electromagnetic makeup and orientation of the atoms of all materials that have the mechanical ability to perform a given task efficiently up to a point concerning input of additional electromagnetic energy and then mechanically causes varying results once this threshold is exceeded.

This and all other thoughts and innovations in this and the previous disclosures of the previous application and the Disclosure Document previously put forth show that there are many different mechanical ways to release a relatively unlimited source of energy from electromagnetic energy that makes up all matter and which results from this invention.

B. Working Prototypes ~

Figure 5 and **Figure 6** illustrate rough working prototypes of this aspect of the invention. These embodiments are only relatively inefficient prototypes built by hand for the purpose of demonstrating the invention. It should be self-evident that the prototypes by various mechanical means and designs can easily be made extremely efficient, and the illustrated embodiments are being presented only for general representational purposes.

As is illustrated in **Figure 5**, there is provided a combined electrical current generator and an electromagnetic motor comprising a rotatable mounted permanent magnet 200, a battery 201, brushes and commutator 202, bearings 203 and power, mounting shaft 204, and a first, primary magnetic producing coil 205 and a secondary electrical producing coil 206. The two coils 205 and 206 are juxtaposed together in parallel disposition with concurrent core center lines, with the magnet 200 positioned alongside of coil 205 at or near its core center line with the rotational axis of the shaft 204 positioned orthogonally to the center line.

In the prototypes a very small battery 201, for example size "N" of 1.5 volts is used.

When the circuit is completed, the battery 20 converts an immeasurable amount of its mass into electrical current (gyroscopic particles moving at the speed of light) which goes through the commutator and brushes 202, and then enters magnetic producing coil 205 made for example from insulated #14 or #15 gauge copper wire with the total weight of the coil 205 being for example 70 to 90 pounds. This causes the atoms of coil 205 to align extremely fast and then release some of their electromagnetic makeup (gyroscopic particles) in the form of a magnetic field. This field then interacts with the gyroscopic particles making up the magnetic field coming from the atoms of the material of the permanent magnet 200. This causes magnet 200 to attempt to align its magnetic field movement with the magnetic field movement coming from the atoms of coil 205, resulting in the rotation of magnet 200 and the shaft 204 to which it is attached. This then changes the position of the commutator and brushes 202 relative to each other’s initial positions, which then causes the electric current coming from battery 201 to be going in the opposite direction into coil 205, causing the atoms of coil 205 to extremely quickly reverse their alignment and the polarity of their magnetic field that they are emitting. The reversed field then interacts again with the magnetic field of permanent magnet 200, causing it to rotate further.

This process is then continuously repeated, producing continuous rotation of the shaft 204 which can be used as a source of motive power in many different ways. A power belt wheel 207, for example, using a continuous V-belt is illustrated as a general representation of this motive power source for producing useful, obvious work. In a prototype test run with a small 1.5- volt type "N" battery, the shaft 204 and the magnet 200 rotated at a high speed for approximately 12 hours before running down. By improving the particular design features of the prototype and by using longer lasting batteries, the rotation time of the shaft 204 can be greatly increased to a theoretical point approaching "perpetual" for all practical purposes. At the same time, the alternating magnetic field produced by coil 205 induces into coil 206 electrical induction which then causes coil 206 to produce an alternating current across its "load", which current can be made to exceed the conventional output of battery 201. The battery source 201 can be replaced as needed.

It is very important to understand that the longer the length of the conducting wire in coil205, the stronger will be the magnetic field and the less electric current that will complete the circuit and get back into the battery and destroy the mechanical source of the electrical current. This effect can be increased further by increasing the diameter of the conducting wire in coil 205 and then greatly increasing its length still further in the coil.

Reason: the gyroscopic particles making up the electric current interact with the atoms of coil 205. The more atoms in coil 205, relative to length, the longer it takes the gyro-particles of the electric current to influence them and get out the other end of the coil. It is then easily seen that if the direction of the current into coil 205 is then reversed, this then further increases this lag time. Reason: The gyroscopic particles have inertia and are believed to be moving at the speed of light and are interacting with the gyroscopic particles making up the atoms of conducting coil 205. These atoms also have inertia, and when the direction of current is reversed into coil 205, the incoming current then collides with the current already in coil 206 going in opposite directions.

This causes a brief hesitation during the time the current already in the coil is being forced to reverse its direction of the atoms within coil 205 that have already been influenced to become aligned. This causes a constant force throughout the circuit, but does not allow very much current to get back into the battery 201 to destroy the mechanical means that initiated the release of electric current in the first place.

Therefore, it should be further understood that the faster the current direction reverses into the coil 205, the more efficiently the matter of battery 201 is converted into pure electrical energy ($E = MC^2$) without the destruction of the mechanical situation that initiates the electrical current release.

It is also important to understand that the stronger the magnetic field coming from the mass of magnet 200, the greater will be its rotational speed. Additionally, the greater the magnetic field coming from the mass of coil 205, the greater will be the rotational speed of magnet 200 and, up to a point, the greater the electric current input from battery 201, the greater will be the percentage of the atoms making up coil 205 that are aligned. This probably has the same relationship as does achieving atom alignment in conventional magnetic materials. Once complete atom alignment is reached in coil 205, no amount of current will cause those atoms to increase the strength of the magnetic field emitting from those atoms.

Therefore, it should be clear that for a given input of electric current from battery 201, the most efficient design is one in which most of the atoms of coil 205 are influenced to atom alignment by that given electric current, which means increasing the diameter and the length of the conducting wire of coil 205 to the point that the strength of the magnetic field produced is sufficient to cause rotation of the magnet 200 to a speed that allows none or at least very little of the electric current that initially comes from the battery 201 to complete the circuit and get back into battery 201 and destroy or reduce the mechanical effect that induced the conversion of the matter of the battery 201 in electric current in the first place.

Again this desired effect can be increased by increasing the strength of the magnetic field given off by the atoms of the permanent magnet 200.

In the second embodiment of Figure 6, the structure and operation of the prototype is substantially identical to that of **Figure 5** with the major exception being that the magnet 300 and shaft 304 elements (and related sub-elements 302, 303, and 307) are positioned inside of and within the core of the primary coil 305, as compared to the placement of the magnet 200 and shaft 204 elements next to and along side of the coil 205 of **Figure 5**. Therefore, for purposes of brevity, a detailed description of the elements of **Figure 6** will not be repeated, but it is noted that the corresponding and analogous elements and sub-elements are similarly numbered in **Figure 5** and **Figure 6**.

It is also important to again stress the fact that the prototype designs shown are presented simply to prove the correctness of the invention, and it should be clear that the invention can be made extremely more efficient by utilizing all of the magnetic field produced by coil 205 and designing the magnet 200 of a shape and strength that efficiently interacts wit the majority of the magnetic fields from coil 205. The illustrated prototypes are relatively highly inefficient in this regard, but even so, the results of the invention itself greatly exceed the prior art as to the use of electric current from whatever source and interaction with an electric motor or whatever work was conventionally performed.

The applicant feels it is very important to again stress that, in building many varying designs of this invention, consideration must be given to the fact that the energy in the field of force of any type of magnet is the energy that makes up the atoms of the material from which it comes! This energy is a real entity with (it is believed) a gyroscopic action. It is literally Einstein's equation of $E = MC^2$. And it is believed that this energy moves at the speed of light and makes up all matter, and that this energy has a constant pressure effect back to the atoms of the material from which it came, similar to hydraulic pressure.

This effect is additionally more fully understood by stating the following results obtained from experimentation by the applicant in the process of this invention.

(a) When the system is initially attached to a 1.5 volt size N battery 201 or 301 and the magnet 200 or 300 and related rotation entities are placed close to or in the center of coil 205 or 305, the following results are observed:

If the electric current produced in coil 206 (306) is then fed back into coil 205 (305) in accordance with proper polarity, the rotation speed of magnet 200 (300) will then accelerate. If fed back into coil 205 (305) in wrong polarity, the rotation speed of magnet 200 (300) will slow down.

This proves that the total force from coil 205 (305) interacting with the magnet 200 (300) is greater when the electrical energy from coil 206 (306) is fed back into coil 205 (305) than when only the initial electrical energy from battery 201 (301) is fed into coil 205 (305).

When two or three batteries are electrically connected together in series so as to create for example three or four and one-half volts of electrical input, this effect is multiplied. Remember that, up to a point, the greater the electrical input, the greater the percentage of atom alignment within the coil 205 (305).

This further proves that the electric current produced in coil 206 (306) is a result of the gyroscopic particles of energy released from the magnetic fields that came from the electromagnetic makeup of the atoms of coil 205 (305), and is not part of the initial electrical energy released from the atoms making up the materials of battery 201 (301)! The coil 206 (306) can be taken out of the system, or its electrical current fed away from the system, and the rotational speed of the magnet 200 (300) will not observably change. The rotational speed of the magnet 200 (300) will noticeably change, however, when the electric current from coil 206 (306) is fed back into coil 205 (305)!

Now a different result:

(b) When the electric current from battery 201 (301) becomes weaker to the point that the magnetic field coming from coil 205 (305) has weakened and shrunk allowing the magnetic field of the rotating magnet 200 (300) to expand and then noticeably induce electric current into coil 206 (306) and into coil 205 (305), then reverse results are observed. When the magnetic field from coil 205 (305) is large, then the magnetic field from magnet 200 (300) is retained!

If coil 206 (306) is then short-circuited, the rotation of magnet 200 (300) will noticeably slow down.

If the electric current from coil 206 (306) is fed back into coil 205 (305) in wrong polarity, the rotation of the magnet 200 (300) will stop. If fed back into coil 205 (305) in correct polarity, the rotation of the magnet 200 (300) will slow down. At that point, the rotation of the magnet 200 (300) will not accelerate, no matter how connected!

These results show that, at this time, the magnetic field from magnet 200 (300) noticeably induces a current in coils 206 (306) and 205 (305) that opposes the rotation of the magnet 200

(300). This effect has already been mechanically explained, and it has been shown that Lenz's Law was simply an observation of that mechanical explanation.

These results further demonstrate that the expanding and collapsing magnetic fields from coil 205 (305) and 206 (306) do not noticeably affect each other detrimentally because the resulting magnetic fields from all the coils are the results of fluctuating atom alignment within the coils! Remember, the gyroscopic energy particles making up the magnetic fields have a hydraulic pressure effect back to the atoms from which they came. Also remember that the atoms making up the material of the permanent magnet 200 (300) are stationary as to atom alignment direction! Therefore, the pressure effect resulting from an opposing field that the magnet 200 (300) induced is immediate, as is hydraulic pressure.

The magnetic field emitted from the atoms of coil 205 (305), relative to induction into the atoms of coil 206 (306), however, are fluctuating and out of step, so to speak, and therefore in harmony with each other. The pressure effect from the induction of coil 205 (305) into coil 206 (306) is an action of the atoms of coil 205 (305) and back into the atoms of coil 206 (306).

This action is seen again when the invention is hooked into 115 volt AC, and battery 201 (301) is not used.

The magnet 200 (300) will not rotate even though the magnetic field from coil 205 (305) is strong and is alternating. Reason: The fluctuating magnetic field is so fast that the inertia mass of magnet 200 (300) cannot get started in one direction before the magnetic field from coil 205 (305) has reversed, thereby causing magnet 200 (300) to vibrate only microscopically at 60 cycles per second.

And, if a 60-watt bulb is connected to the system of coil 205 (305), it will light only dimly, and there is a lag time of two or three seconds before it lights.

If then coil 206 (306) is connected to a meter, there is a reading of 49 volts, and if the meter is replaced by another 60-watt bulb, it will light only extremely dimly. The 60-watt bulb connected to coil 205 (305), however, will now become noticeably brighter! This again shows that the action and reaction results of the atoms of the coils are not noticeably detrimental to each other because of the lag time (out of step, so to speak) resulting in reinforcing the flipping atom alignment of the coils.

From this further explanation of the invention it is seen that desirable results may be obtained by the following:

For example, in **Figure 6** the magnet 300 may be of a design and/or be located at a distance from the inside diameter of coil 305 and coil 306, whereby the majority of the magnetic field from the magnet 300 do not cut the conducting loops of coil 305 or 306. Yet the alternating magnetic field produced by coil 305 should efficiently have the majority of its gyroscopic particles interacting with the majority of the gyroscopic particles making up the magnetic field of the permanent magnet 300, but not directly reacting with the atoms making up coil 305, or magnet 300!

When the magnetic lines of force of the magnet 200 (300) cross at right angles with the conducting wires of coil 205 (305), 206 (306), a braking action is incurred. It should be noted that, as the inner diameter of coil 205 (305) increases, the percentage of time of braking effect decreases.

Along this same line of instruction, the commutator segments 202 (302) can be made of a large diameter and the area of brushes made small, whereby, when the brushes cross over the gaps in the commutator segments, there will be no short circuit at any tie directly back to the battery 201 (301).

By combining the slip rings and brushes (the slip rings can be made of a small diameter) to the side or sides of the brushes and commutator segments 202 (302), then battery 201 (301) does not have to rotate with magnet 200 (300).

The no. 14 and No. 15 gauge copper insulated wire of 70 and 90 pounds (31.5 and 40.5 kilograms) used for the motor coil 205 (305) and the generator coil 206 (306) respectively in the first hand-made prototypes of the embodiments of **Figure 5** and **Figure 6** for demonstration purposes only, come in standard buckets of varying weights from wholesale outlets. It was then wound in coils as shown and, as taught, the more conducting wire sued, the better the results. The magnets 200 and 300 were each initially about a 2-1/2 inches (6.25 cm) cube and can be any size and strength desired.

In a further, rough, hand built demonstration, working prototype of the invention of the type illustrated in **Figure 6**, the primary motor coil 305 was made of No. 5 gauge copper wire in a single, continuous wire form weighing approximately 4,100 pounds (1,845 kg.) with a coil lop diameter of 4-1/2 feet (135 cm), while the secondary or generator coil 306 was made of No. 24 gauge copper wire in a single, continuous wire form weighing approximately 300 pounds (145 kg) with the same, approximate loop diameter of 4-1/2 feet (135 cm) with both coils 305, 306 coincidently forming a cylinder of approximately 30 inches (75 cm) in length. The coils 305, 306 were built around a cylindrical fiberglass core body of approximately 200 pounds (90 kg) having a vertical longitudinal center-line axis.

The rotating magnet 300 was made up of six separate parallel cylindrical magnetic columns spaced and disposed about the periphery of a hollow cylindrical fiberglass surface of approximately 20 inches (50 cm) diameter. Each column was 30 inches (75 cm) long and was composed of a stack of 70 individual ceramic ring magnets in disc form as made by Jobmaster Magnets (Randallstown, MD 21133 USA). Each disc had a thickness of 7/16 inch (1.09375 cm), an inner diameter of one inch (2.5 cm) and an outer diameter of 4 inches (10 cm). The discs were stacked and secured together in 4-inch (10 cm) diameter fiberglass tubes longitudinally mounted on the inner surface of the 20-inch (50 cm) diameter fiberglass cylinder. The composite magnet 300 had a total weight of approximately 400 pounds (180 kg) and a total length of 30 inches (75 cm) and an approximate diameter of 20 inches (50 cm).

The magnet 300 was mounted for rotation on a horizontal shaft 304 extending across the hollow core of the coils 305, 306 crossing through the center point of the longitudinal center-line of the cylinder and orthogonal to the longitudinal center-line of the magnet 300 for rotation within the open center area of the cylindrically disposed coils 305 and 306 with the longitudinal center-lines of the coils being vertically disposed.

With a DC battery source 301 of two 12-volt lantern batteries and seventeen 6-volt lantern batteries all ins series (totaling 126 volts), a measured voltage of 126 volts and a measured current of 99 milliamps was noted in the primary coil 305. Concurrently a voltage reading of 640 volts and an amperage measurement in excess of 20 milliamps were noted in the secondary or generating coil 306, with the magnet 300 rotating at a speed of 120 rpm. Thus the system was outputting and producing in the generating coil 306 useable electricity in excess of 102 % of that being input in the motor coil 305! This excess useful electrical energy of course is in addition to the further useful mechanical energy available at the exemplary drive takeoff 307 on the rotating shaft 304, on which the 400-pound, 30-inch long magnet 300 was rotating at 120 rpm!

Thus the invention, by utilizing the energy of the gyroscopic particles in the magnetic field, produces a greater energy output than the energy input to the system, thus producing results beyond presently accepted scientific teachings of the world.

This prototype achieves exactly what has already been described in great detail in applicant's prior patent applications. In this prototype there was simply used a stronger magnet and a larger diameter conducting wire of great length that has a considerably greater number of atoms aligned when current is put into the system, and used a greater number of atoms in the generator coil of fine diameter conducting wire.

While the results of the energy released from this particular prototype is highly impressive to others, applicant still has only scratched the surface of the energy that can be released using the principles of the present invention.

Again, as has already been stressed, the most efficient design is one in which the least amount of input of current causes the greatest amount of atom alignment.

This data does not constitute any departure from the applicant's previous work, but is only to further document that which has already been stressed in the prior patent applications.

Varying the DC voltage for the battery source 301 shows that obvious efficiency will continue will continue to rise as the voltage input goes up!

Also, the leverage factor advantage of the invention, combined with the inertia of the 400-pound magnet 300 rotating at 120 rpm (even while causing the electrical generator to put out over 100% of energy input) proves the invention to be greatly over 100% efficient even at this slow rpm.

It is contemplated that the next prototype will use super-conducting type material for the coil 305 with a magnet 300 having a magnetic material comparable to that of cryogenic-type magnet relative to percentage of atom alignment or size.

This will result in the size of the invention being much smaller and yet with the available work output being much greater than the prototype just described. Reason: The most efficient type design is one whereby the least amount of current input into the motor coil produces the greatest atom alignment of said motor coil and having rotatable magnet also comparable in strength, relative to size.

The invention can be made without using the coil 206 (306) and producing just useful mechanical energy.

Coil 206 (306) can be merged or wound with coil 205 (305).

The magnet 200 (300) can be an electromagnet, a permanent magnet, a cryogenic magnet, or any magnet.

The design of magnet 200 (300) can create a strong but retained magnetic field.

The design of coil 205 (305) can be used to further retain the magnetic field of magnet 200 (300).

Alternating current can be used in place of the DC battery 201 (301), if the magnet 200 (300) is designed accordingly.

The coils 205 (305) and 206 (306) may be made up of several coils rather than a single coil.

The magnet 200 (300) may be made up of several individual magnets rather than from just a single magnet.

From the foregoing it should be understood that, unlike the teachings of the prior art, the following is desired in the design of the coil 205 (305) under the principles of the present invention:

(a) Current initially flowing into and through the coil should be small compared to the energy output of the system;

(b) A relatively large diameter wire or its equivalent is used for the coil;

(c) A relatively large number of coil loops or coils is used;

(d) A relatively long, continuous length of coil wire or its equivalent is used; and

(e) The greatest magnetism for a given mass of the magnet 200 (300) is desired but may be designed to that the magnetic lines of force will not cut the coils at a right angle.

The present invention applies to any mechanical device that is operated by electrical energy. In accordance with the principles of the present invention, the mechanical device should be designed wherein the electrical current as much as is feasible cannot get back to its source, but the circuit is completed whereby the pressure force is constant throughout the system.

What has been invented, built and disclosed is an invention of immense importance to the well-being of the entire world. There will be many devices built from what has been shown and taught. It should now be known that all matter is made up of electromagnetic energy and that there are many mechanical ways to release this energy, as has been stated throughout the five prior related patent applications hereof and the Disclosure Document. All of these future developments will be as a result of the present invention, which releases energy above and beyond conventional energy release mechanisms prior to this invention

Claims ~

What is claimed is:

(1) An electrical energy generation system for generating useable electrical energy, comprising:

a source of at least one magnetic field;

useable electrical energy output means associated with said magnetic field for making available for sue the useable electrical energy generated in the system; and

application means associated with said magnetic field for applying an adequate force at the proper angle to the gyroscopic type energy particles making up said magnetic field to cause said gyroscopic type energy particles to follow a desired direction producing useable electrical energy at said output means, the amount of said useable electrical energy being greater than the amount of any external energy input to said source and said application means.

(2) The system of Claim (1), wherein said application means comprises magnetic means for producing a magnetic field and a closed housing associated therewith containing a fluid in the magnetic field produced by said magnetic means, said fluid becoming charged as a result of its interaction with the gyroscopic type energy particles making up said magnetic field.

(3) The system of Claim (2), wherein said magnetic means is a series of aligned magnets positioned centrally within said housing but electrically insulated therefrom.

(4) The system of Claim (2), wherein there is included a further, keeper housing surrounding said closed housing and electrically insulated therefrom, said keeper housing tending to keep and concentrate the magnetic field produced by said magnetic means within it.

(5) The system of Claim (2), wherein said output means includes a network of metallic surfaces immersed in said fluid to pick up the electrical charges on said fluid.

(6) The system of Claim (1), wherein said application means comprises a member having its atoms aligned to produce a net magnetic field which is at least substantially contained within the surface boundaries of said member.

(7) The system of Claim (6), wherein said member is positioned in operative association with at least one magnet, and said member and said magnet are held static with respect to one another.

(8) An energy generation system for generating useable energy, comprising:

at least one mass of material producing a source of at least one magnetic field;

useable energy output means associated with said magnetic field for making available for use the useable energy generated in the system;

alignment means associated with said mass for causing at least some of the atoms of said mass to alternately align and disalign, releasing some of the internal energy making up the affected atoms of said mass; and

utilization means for utilizing some of the energy released from the affected atoms of said mass producing useable energy at said output means, the amount of said useable energy being greater than the amount of any external energy input to said mass, said alignment means and said utilization means.

(9) An energy generation system for generating useable energy, comprising:

at least one mass of material producing a source of at least one magnetic field;

useable energy output means associated with said magnetic field for making available for use the useable energy generated in the system;

alternating electric current means associated with said mass for producing an electric current in said mass in an alternating direction, causing an alternating magnetic field to encompass said mass; and

current retarding means associated with said mass for at least partially entrapping said electric current in said mass an effective amount for producing useable energy at said output means of an amount greater that the amount of energy input into said mass from said alternating electric current means.

(10) The system of either one of Claim 8 or 9, wherein:

the energy generation system comprises an electrical energy generation system; and said useable energy output means comprises an electrical power output means.

(11) The system of either one of Claims 8 or 9, wherein:

the energy generation system comprises a motion generation system; and said useable energy output means comprises useable motion output means.

(12) The system of Claim (9), wherein said current retarding means includes at least one coil of wire of effective size having an effective number of turns of wire of an effectively large diameter and an effectively great length for at least partially entrapping said electric current.

(13) The system of Claim (9), wherein said current retarding means includes a rotary magnetic mass designed to react said alternating magnetic field encompassing said mass of material, said alternating magnetic field reversing no faster than the atoms of said mass of material can flip and realign; said rotary magnetic mass being made long to adjust to this requirement, the distance of the arc of circle traveled by the ends of said rotary magnetic mass being great; great leverage from said alternating magnetic field of said mass of material being applied to said rotary magnetic mass, and, in addition to the increased distance of arc traveled by the ends of said rotary magnetic mass before the magnetic field of said mass of material reverses, greatly increasing the time in which a maximum force is exerted by the gyroscopic type energy particles moving in a magnetic field coming from the maximum number of atoms aligned in said mass of material, causing a longer time of acceleration of said rotary magnetic mass before the atoms of said mass are required to reverse.

(14) The method of generating suitable useable energy, comprising the steps of:

(a) providing a magnetic device that has a material mass into which an electrical current is introduced, which results in causing pertinent atom alignment within said material mass, thereby releasing some of the electromagnetic energy making up the atoms of said material mass in the form of a magnetic field, causing the gyroscopic type energy particles of said magnetic field to then interact with the gyroscopic type energy particles making up a magnetic field coming from the atoms of a different material mass; and

(b) having the magnetic device then cause a release of useable energy through at least one power outlet and resulting in producing a greater energy output than external energy input to the device.

(15) The method of Claim (14), wherein the material mass into which the electric current is introduced is a superconducting material, and said separate magnetic mass is at least equivalent to a cryogenic magnet.

(16) The method of Claim (14), wherein step (a) is achieved by the step of having said material be a conducting material and said separate magnetic mass be of any desired configuration of strength or type.

(17) The method of Claim (14), wherein the material mass(es) are made of a material or substance that allows for extremely fast atom alignment without the delay or conventional degrees of hysteresis loses normally associated with conventional iron atom alignment.

(18) A method of generating useable electrical energy from a source of at least one magnetic field, comprising the following step:

applying an adequate force at the proper angle to the gyroscopic type energy particle to follow a desired direction producing useable electrical energy at an output means of an amount greater than the amount of any external energy input to the system.

(19) The method of Claim (18), wherein there is further included the step of:

maintaining all of the elements of the system in fixed locations without any normal, visible movement taking place within the system.

(20) A device that increases the availability of useable electrical energy or useable motion, or both, from a given mass or masses by a device causing a controlled release of, or reaction to, the gyroscopic type energy particle making up or coming from the atoms of the mass or masses, which in turn, by a properly designed system, causes an energy output greater than the energy input.

(21) The method of producing useable energy, comprising the following steps:

(a) inputting energy into a device from an external source;

(b) having electrical current flow within said device; and

(c) utilizing the internal electromagnetic energy of at least some of the matter in the device to add to the energy being input to the device from the external source to produce useful energy for use outside of the device having an amount greater than the energy being input to the device.

(22) A method for generating useable energy from at least one mass of material producing a source of at least one magnetic field, comprising the following steps:

(a) producing an electric current in said mass in an alternating direction, causing an alternating magnetic field to encompass said mass; and

(b) at least partially entrapping an effective amount of said electric current in said mass for producing useable energy at said output means of an amount greater than the amount of energy input to said mass from said alternating electric current means.

(23) The method of Claim (22), wherein in step (b) there is included the step of providing a separate magnetic source positioned so that its magnetic lines of force avoid significantly cutting the material through which the electrical energy flows, avoiding a braking effect that would retard the desired motion of said magnetic source.

(24) The method of Claim (22), wherein in step (b) there is included the step of:

(c) retarding the flow of current through said mass to a very great extent, producing at most a relatively small negative current flow through said mass.

(25) The method of Claim (24), wherein step (c) is achieved at least in part by a step of providing at least one relatively large coil of wire having a relatively large number of turns of wire of a relatively large diameter and a relatively great length.

(26) The method of Claim (24), wherein step (c) is achieved at least in part by the step of utilizing a retaining means by which the electric current is at least mostly retained within at least

one member outside of the source of said electric current and then, as a result thereof, is capable of producing a continuous electromagnetic product.

(27) A method for generating useable energy from at least one mass of material producing a source of at least one magnetic field, comprising the following steps:

(a) causing at least some of the atoms of said mass to alternately align and disalign, releasing some of the internal energy making up the affected areas of said mass; and

(b) utilizing some of the energy released from the affected atoms of said mass, producing useable energy at an output means of an amount greater than the amount of any external energy input to the system.

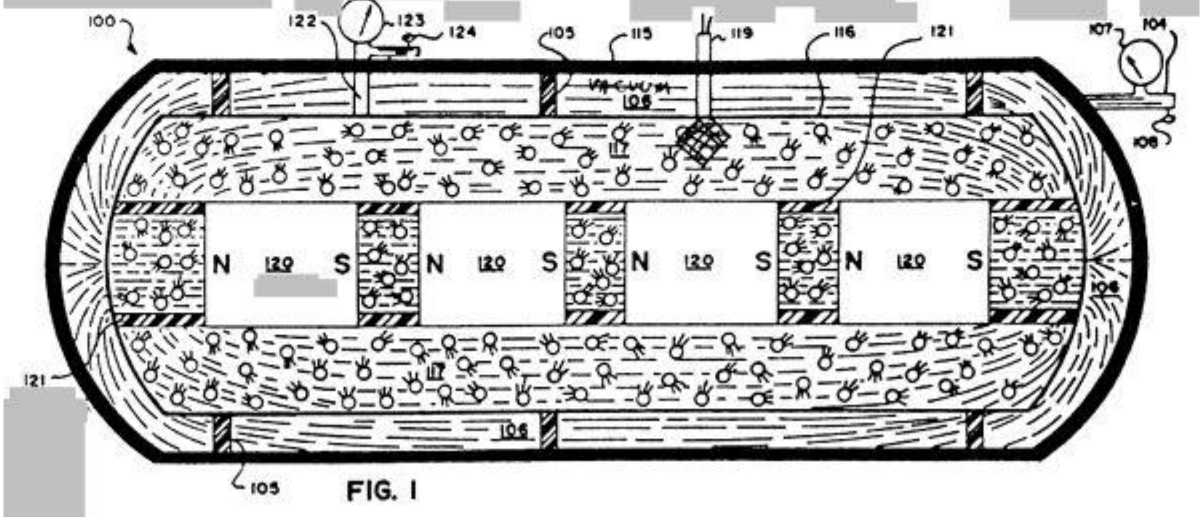


FIG. 1

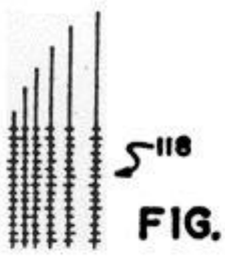


FIG. 2

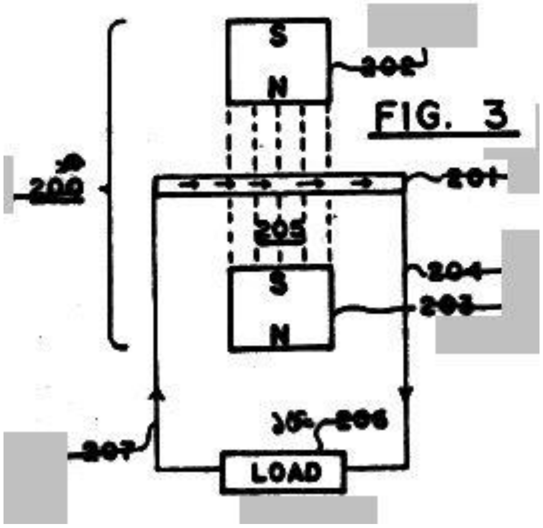


FIG. 3

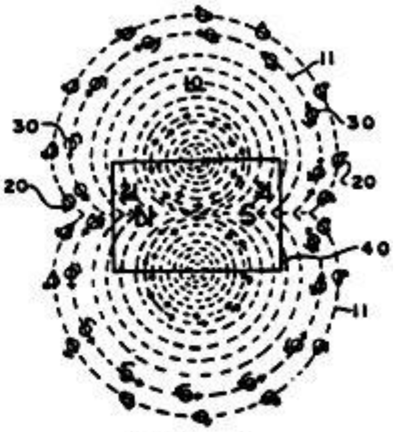


FIG. 4

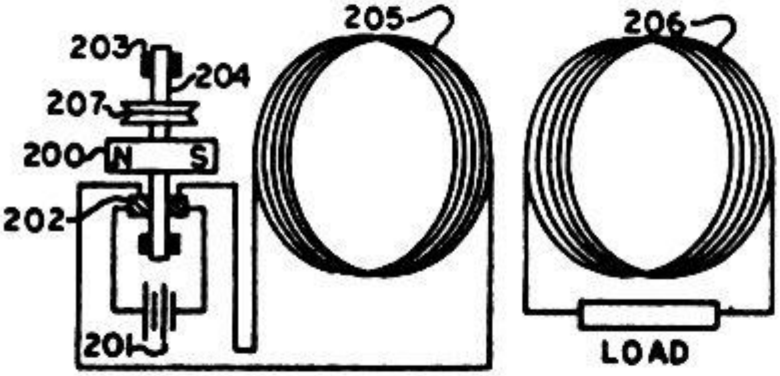


FIG 5

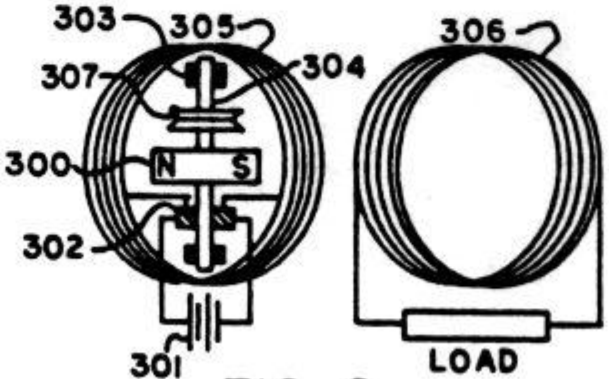


FIG 6

Michael OGNYANOV

Electrical Power Pack

---

http://www.panaceauniversity.org/D3b.pdf

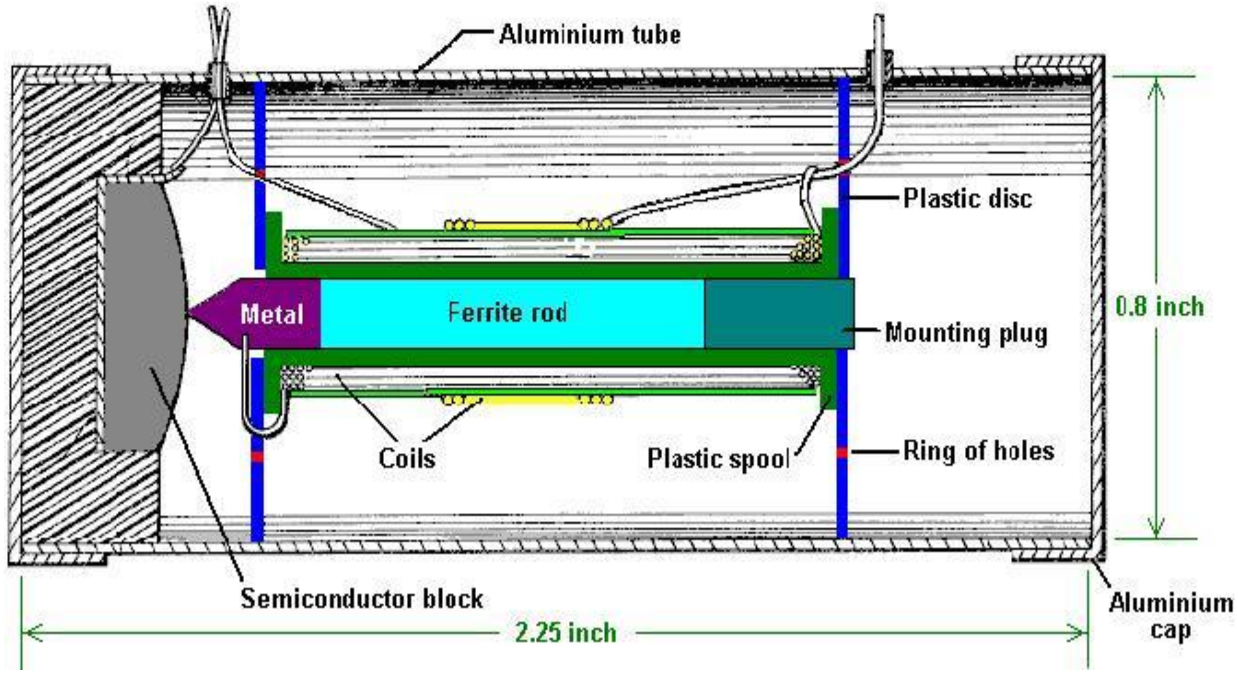
Excerpted from Patrick J. Kelly : ***The Practical Guide to free Energy Devices*** **---**

A patent application US 3,766,094 (shown in detail in an accompanying document) gives the details of an interesting device. While it is only an application and not a full patent, the information implies strongly that Michael built and tested many of these devices.

While the power output is low, the design is of considerable interest. It is possible that the device works from picking up the output from many radio stations, although it does not have anything which is intended to be an aerial. It would be interesting to test the device, first, with a telescopic aerial added to it, and second, placed in an earthed metal box.

The device is constructed by casting a small block of a mixture of semiconductor materials such as Selenium with, from 4.85% to 5.5% Tellurium, from 3.95% to 4.2% Germanium, from 2.85% to 3.2% Neodymium, and from 2.0% to 2.5% Gallium. The resulting block is shaped with a dome on one face which is contacted by a short, pointed metal probe. When this arrangement is fed briefly with an oscillating signal, typically in the frequency range of 5.8 to 18 Mhz, it becomes self-powered and can supply electric current to external equipment. The construction is as shown here :

Presumably the output power would be increased by using full-wave rectification of the oscillations rather than the half-wave rectification shown. Michael says that increasing the dimensions of the unit increases the output power. The small unit shown in this example of his, has been shown to be able to provide flashing power for an incandescent lamp of up to 250 mA current requirement. While this is not a large power output, it is interesting that the output is obtained without any apparent input. Michael speculates that the very short connecting wires may act as radio reception aerials. If that is the case, then the output is impressive for such tiny aerials.



---

http://v3.espacenet.com/publicationDetails/biblio?KC=A&date=19731016&NR=3766094A&DB=EPODOC&locale=en_EP&CC=US&FT=D

SEMICONDUCTOR COMPOSITIONS
US3766094

1973-10-16
Classification: - international: H05B39/09; H05B39/00; (IPC1-7): H01B1/00 - European: H05B39/09

Abstract -- A resonance oscillator electric power pack for operating a flash lamp, for example, or other electrically operated device, operates without moving mechanical parts or electrolytic action. The power pack is contained in a cylindrical metal envelope and in a preferred embodiment is coupled to a relaxation oscillator and an incandescent lamp. Within the envelope, and insulated therefrom, is a semiconductor tablet having a metal base connected to the external circuit. A metal probe makes contact with a point on the semiconductor tablet and also with a cylindrical ferrite rod axially aligned with the envelope. Wound about the ferrite rod are concentric helical coils designated as a primary with many turns and a secondary with fewer turns than the primary. The primary coil is connected at one end to the probe and at the other end to the secondary coil. The leads from the secondary coil are connected to the relazation oscillator by way of an adjustable capacitor. Oscillation within the envelope is resonance amplified, and the induced voltage in the secondary coil is rectified for application to the relaxation oscillator and lamp. Selenium and germanium base semiconductor compositions including Te, Nd, Rb and Ga in varying proportions are used for the tablet.

Background

In many situations it is desirable to have a source of electric power that is not dependent on wires from a central generating station and, therefore, portable power supplies having no moving parts have been primary or secondary electrolytic cells which generate or store electrical energy for release by chemical action. Such batteries have a limited amount of contained energy and must often be replaced at frequent intervals to maintain equipment in operation.

Thus, as one example, flashing lights are now commonly used along highways and other locations to warn of dangerous conditions. These flashing lights in remote locations are typically oncandescent or gas discharge lamps conected to some style of relaxation oscillator powered by a battery. The batteries have a limited lifetime and must be periodically replaced, typically each 250-300 hours of operation. This involves a rather large labor cost and additional cost for primary cells or for rechargin secondary cells. it is desirable to provide an electric power pack capable of providing a sufficient quantity of electrical energy over a prolonged period of time so that the requirement of periodic replacement of the electrolytic cells can be avoided. Such a power pack is valuable even if appreciably more expensive than batteries because of the greatly reduced labor for periodic replacement.

Brief Summary of the Invention

There is provided in practice of this invention according to a presently preferred embodiment semiconductive compositions selected from the group consisting of selenium with from 4.85 to 5.5% tellurium, from 3.95 to 4.2% germanium, from 2.85 to 3.2% neodymium, and from 2.0 to 2.5% gallium; selenium with from 4.8 to 5.5% tellurium, from 3.9 to 4.5% germanium, from 2.9 to 3.5% neodymium, and from 4.5 to 5.0% rubidum; and germanium with from 4.75 to 5.5% tellurium, from 4.0 to 4.5% neodymium and from 5.5 to 7.0% rubidium.

Drawings

These and other feratures and advantages of the invention will be appreciated as the same becomes better understood by reference to the following detailed description of a presently preferred embodiment when considered in conenction with the accompanying drawing wherein:

Fig. 1 illustrates in exploded schematic a flashing lamp connected to an electric power supply constructed according to the principles of this invention;

Fig.1

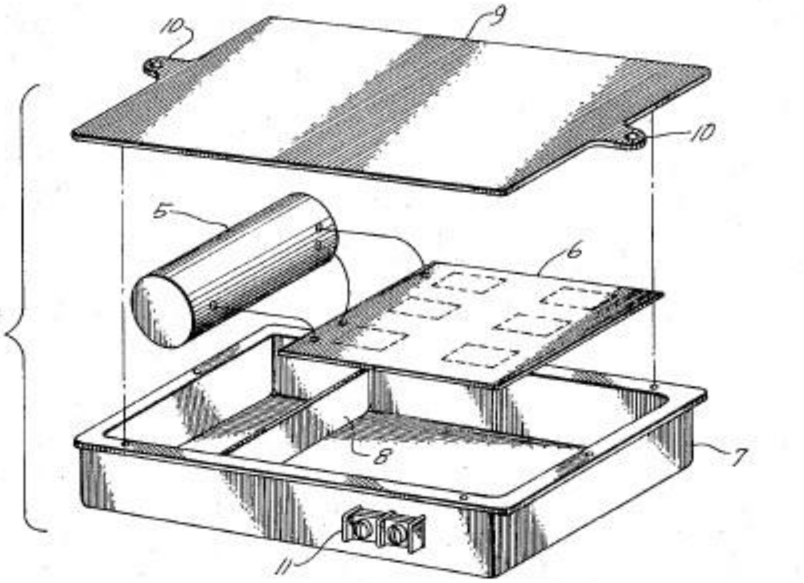


Fig. 2 illustrates in longitudinal cross section the power pack of Fig. 1; and

Fig. 2

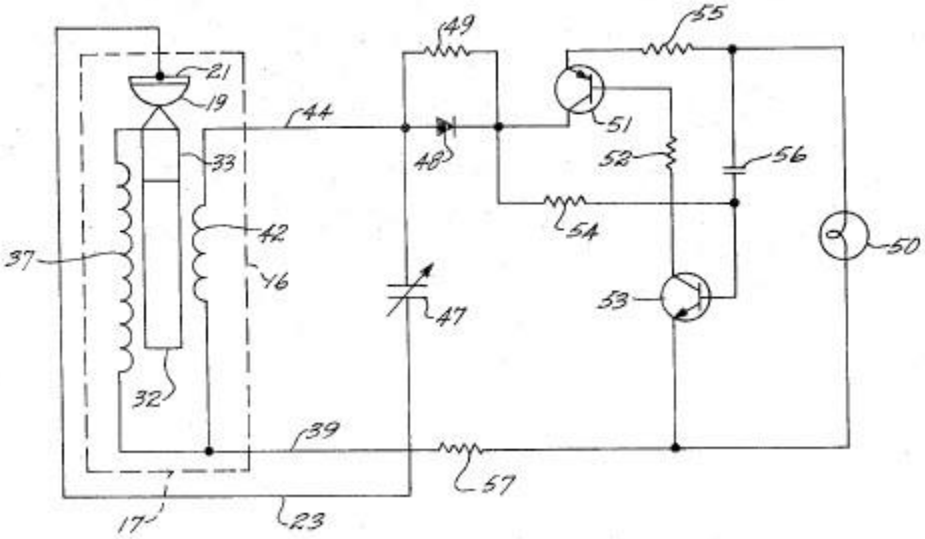
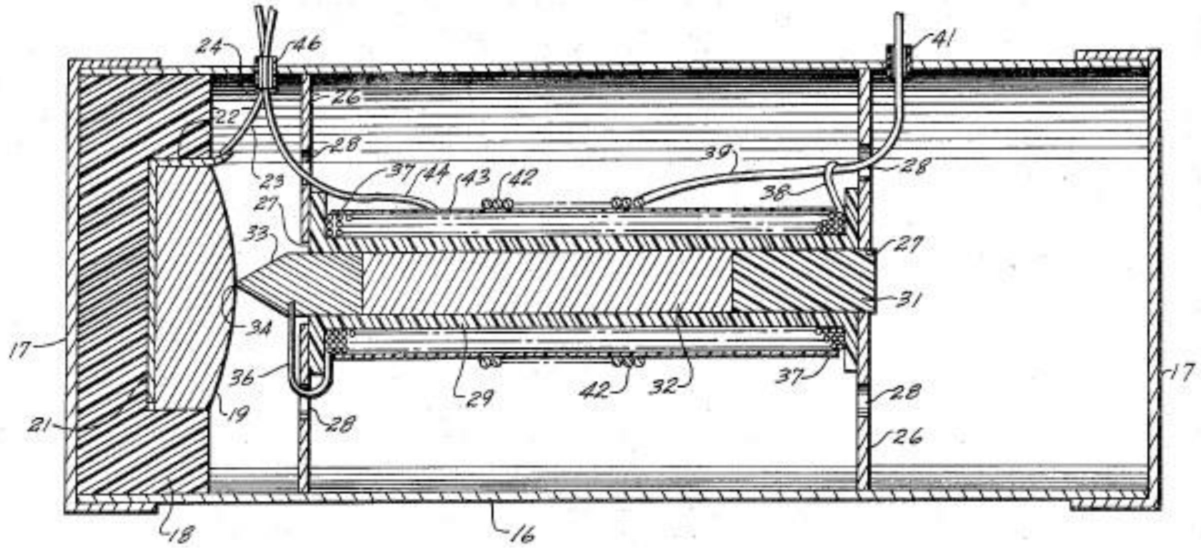


Fig. 3 is an electric circuit schematic of the system.

FIG_3



Description

Fig 1 illustrates schematically a typical flashing lamp having a power supply constructed according to principles of this invnetion. As illustrated in this presently preferred embodiment an electric power pack 5 is electrically connected to a relaxation oscillator circuit (shown only schematically) on a conventional printed circuit board 6. The power pack 5 and printed circuit board are mounted in a metal box 7 having a transverse partial partition 8 defining a space for the power pack and another space for the printed circuit board which is supported away from contact with the box by any convenient insulator. Preferably these elements are potted in palce in a conventional manner. A cover 9 having mounting ears 10 is riveted on the box after assembly. A small terminal strip 11 on one side of the box 7 provides eelctrical contacts for connection to a load such as an incandescent lamp (not shown in Fig. 1). The lamp provides a flash of light when the relaxation oscillator switches. Although the described system is employed for a flashing lamp, it will be apparent to one skilled in the art that this is only exemplary and other applications can be made.

The electric power pack 10 is illustrated in longitudinal cross section in Fig 2 and has dimensions as set out here after. These dimensions are exemplary of the illustrated embodiment for operating a conventional flasher lamp, and it will be apparent that other dimensions may be employed for other applications. in particular, the dimensions may be enlarged in many circumstances in order to obtain somewhat high power levels and different voltage or current levels. The power pack comprises a cylindrical metal tube 16 having closely fitting metal caps 17 at each end, which are preferably sealed to the tube after the internal elements are inserted in place. The metal tube 16 and caps 17, which are preferably of aluminum, thus form a closed conductive envelope which in a typical embodiment has an inside diameter of about 0.8 inch and a length of about 2-1/4 inch.

Mounted within one end of the envelope is a plastic cup 18, the dimensions of which are not extremely critical; however, a wall thickness of at least 1/16 inch is preferred. Mounted within the plastic cup 18 is a semiconductor tablet 19 having a flat base and somewhat domed opposite side. The composition of the semiconductor tablet 19 is set out in greater detail hereinafter. Typically, the semiconductor tablet has a mass of about 3.8 grams. A metal disk 21 is positioned beneath the base of the ablet 19 in the cup 18, and is preferably adhesively bonded into the cup. The metal disk is tightly fitted to the base of the tablet so that good electrical contact is obtained over a subtatntial area of the semiconductor. An ear 22 on one edge of the disk is soldered to a lead wire 23 which extends through a short insulating sleeve 24 in a hole in the side of the metal envelope. The insulating sleeve 24 assure spacing of the lead wire 23 from the tube 16 and prevents accidental damage to the insulation in the lead wire which could lead to shorting to the metal case. Preferably, the insulating sleeve 24 is sealed with a small amount of plastic cement or the like in order to maintain clean air within the cylindrical envelope. Two other openings for leads through the tube 16, as hereinafter set forth, are also preferably sealed for maintaining cleanliness within the envelope.

A pair of circular metal disks 26 are fitted within the tube 16 and preferably cemented in place to prevent shifting. the two disks 26 are equally spaced from the oppsoite ends of the envelope and are spaced apart a little over 1.15 inch. each of the disks 26 includes a central aperture 27, and there are a plurality of holes 28 extending through the disk in a circular array midway between the center of the disk and its periphery. The holes 28 are preferably in the size range of about 0.010 to 0.060 inch, and there are 12 on each disk on 30 degree centers around the circle. The two disks 26 thus divide the interior of the cylindrical envelope into three chambers, and the pattern of holes 28 provides communication between the chambers and affects the electrical properties of the cavity. It is believed that the pattern of holes affects the inductive coupling between the sevarl caviteis within the envelope for influencing oscillations therein. Although an arrangement of 12 holes on 30 degree centers has been found particularly advantageous in the illustrated embodiment, it is found in other arrangements that a pattern of 20 holes on 18 degree centers or a pattern of 8 holes on 45 degree centers, provides optimum operation. In either case, the circle of holes 28 is midway between the center and the periphery of the disk.

Mounted between the disk 26 is a palstic spool 29 having an inside distance of 1.1 inch between the ends. the plastic spool 29 is preferably relatively thin walled and has an internal bore diameter of 1/8 inch. A plastic mounting plug 31 is inserted through the central aperture 27 of one of the disks 26 remote from the semiconductor table 19, and into the bore of the spool 29. The plastic plug 31 is preferably cemented in place to the disk 26 for holding the assembly together.

Also mounted within the bore of the spool 29 is a cylindrical ferrite core 32 about 1/8 icnh diameter and 3/4 inch long. Although a core of any magnetic ferrite is preferred, other ferromagnetic materials having similar properties can be employed if desired. The core 32 is in electrical contact with a metal probe 33 about 1/4 inch long. Half of the length of the probe 33 is in the form of a cone ending in a point 34 in contact with the domed surface of the semiconductor tablet 19, thereby making electrical contact with the semiconductor in a relatively small point.

Electrical contact is also made with the probe 33 by a lead 36 that passes through one of the holes 28 in the disk 26 nearer the semiconductor tablet and thence to a primary coil 37 wound on the plastic spool 29. The primary coil 37 is in the form of 800 to 1000 turns wound along the length of the spool, and the lead 28 at the opposite end of the coil 37 is soldered to one of the external leads 39 of the power pack. This lead 39 proceeds through one of the holes 28 in the disk remote from the semiconductor tablet 19 and through an insulated sleeve 41 in the metal tube 16. The lead 39 is also connected to one end of a secondary coil 42 which is in the form of 8 to 10 turns around the center portion of the primary coil 37. A thin insulating sheet 43 is preferably provided between the primary and secondary coils. The other lead 44 from the secondary coil passes through one of the holes 28 in the disk nearer the semiconductor tablet and thence through an insulating sleeve 46 through the wall of the tube 16.

Fig 3 illustrates schematically the electrical circuit employing an electric power pack constructed according to the principles of this invention. At the left-hand side of Fig 3 the arrangement of eleements is illustrated in a combination of electrical schematic and mechanical positions within the tube 16 for ready correlation with the embodiment illustrated in Fig 2. Thus, the semiconductor tablet 19, probe 33, and ferrite core 32 are shown in both their mechanical and electrical arragnement, the core being inductively coupled to the coils 37 and 42. The lead 23 from the metal base of the semiconductor tablet 19 is connected to a variable capacitor 47, the other side of which is connected to the lead 44 from the secondary coil 42. The lead 44 is also connected to a rectifying diode 48 shunted by a high resistance resitor 49.

It will be seen that the variable capacitor 47 is in a tank circuit with the inductive coils 37 and 42 which are coupled by the ferrite core 32, and this circuit also includes the semiconductor tablet 19 to which point contact is made by the probe 33. The mechanical and electrical arrangment of these elements provides a resonant cavity in which resonance occurs when the capacitor 47 is properly trimmed. The diode 48 rectifies the oscilaltions in this circuit to provide a suitable DC for operating an incandescent lamp 50 or similar load.

The rectifying diode 48 is connected to a complementary symmetry relaxation circuit for switching power to the load 50. The diode is connected directly to the collector of a PNP transistor 51 which is in an inverted connection. The emitter of the PNP transitor is connected to one side of the load by way of a timing resistor 55. The base of the transistor 51 is connected by way of a resistor 52 and a capacitor 56 to the collector of an NPN transitor 53, the emitter of which is connected to the other side of the load 50. The base of the NPN transitor 53 is coupled to the diode by a resistor 545. The emitter of the PNP transistor 51 is fed back to the base of the NPN transistor 53 by the resistor 55. Current flow through the lamp 50 is also limited by a resistor 57 which couples one side thereof and the emitter of the NPN transistor 53 to the two coils 37 and 42 by way of a common lead 39.

The electrical power pack is believed to operate due to a resonance amplification once an oscillation has been initiated in the cavity, particularly the central caivity between the disks 26. This oscillation, which apparently rapidly reaches amplitudes sufficient for useful power, is then half wave rectified by the diode 48 for use. With such an arrangement, a voltage level of several volts has been obtained, and power sufficient for intermittent operation of a lamp requiring about 170-250 milliwatt has been demonstrated. the resonant amplification is apparently due to the geometrical and electrical combination of the elements, which provide inductive coupling of components in a suitable resonant circuit. This amplification is also, at least in part, due to unique semiconductor properties in the tablet 19, which has electronic properties due to a composition giving a unique atomic arrangement, the exact nature of which has not been measured.

The semiconductor tablet has electronic properties which are determined by the composition and three such semiconductors satisfactory for use in the combination have been identified. In two of these, the base semiconductor material is selenium provided with suitable dopant elements, and in the third, the base element is germanium, also suitably doped. The semiconductor tablets are made by melting and casting in an arrangement that gives a large crystal structure. It has not been found necessary to provide a selected crystal orientation in order to obtain the desired effects.

A preferred composition of the semiconductor includes about 5% by weight of tellurium, about 4% by weight of germanium, about 3% by weight of neodymium, and about 4.7% by weight of rubidium, with the balance of the composition being selenium. Such a composition can be made by melting these materials together or dissolving the materials in molten selenium.

Another highly advantageous composition has about 5% by weight of tellurium, about 4% by weight of neodymium, and about 2.24% by weight of gallium. In order to make this composition, it is found desirable to add the very low melting gallium in the form of gallium selenide rather than an elemental gallium.

A third suitable composition has about 5% by weight of tellurium, about 4% by weight of neodymium, about 6% by weight of rubidium, with the balance being germanium. The preferred compositions set forth hereabove are not absolute and it has been found that the level of dopant in the compositions can be varied within limits wiothout significant loss of performance. Thus, it is found that the proportion of tellurium in the preferred composition can range from about 4.8% to about 5.5% by weight, the germanium can range from about 3.9% to 4.5%; neodymium can range from about 2.9% to 3.5% by weight; and rubidium can vary from about 4.5 to 5.0% by weight. The balance of the preferred composition is selenium, although it has also been found that nominal impurity levels can be tolerated and no great care is required in preventing minor contamination.

The other selenium base composition useful in practice of this invention can have a tellurium concentration in the range of from about 4.85 to 5.5% by weight; neodymium in the range of about 2.85 to 3.2% by weight; and gallium in the range of from about 2.0 to 2.5% by weight. As in the preferred composition, the balance is selenium and nominal impurity levels can be tolerated.. It is preferred to add the gallium in the form of gallium selenide with a corresponding decrease in the selenium used to make up the composition.

The above selenium base compositions are easier to make and less expensive than the germanium base composition and are therefore preferable for most applications. It is found that these are particularly suited for relatively small semiconductor tablets up to about 1 inch or less. For relatively large tablets, it is preferred to use the germanium base composition.

The germanium base composition has a tellurium level in the range of from about 4.75 to 5.5% by weight; neodymium in the range of from about 4.0 to 4.5% by weight; and rubidium in the range of from about 5.5% to 7.4% by weight. It is also found that it of greater importance to maintain purity of the germanium base compositions than the selenium base compositions. Although the exact purity levels have not been ascertained, it is in excess of 99%.

It has been found that it is not necessary to have single crystals in the semiconductor tablets and any convenient grain size in excess of about 1 mm appears satisfactory. In the above compositions, when the recited ranges are exceeded, oscilaltion in the power pack drops off rapidly and may cease altogether.

The reasons that these compositions are satisfactory in the arrangemnt providing resonance amplification has not been determined with certainty. it is possible that the semiconductor serves as a source of electrons for providing an oscillating current in the circuit. This is, of course, combined with a relatively large area contact on another area. Any resonant current in the coils wound on ferrite rod induces a varying magnetic field in the resonant cavity, and the electrical connection between the ferrite rod and the metal probe provides a feedback of this oscilation to the semiconductor tablet.

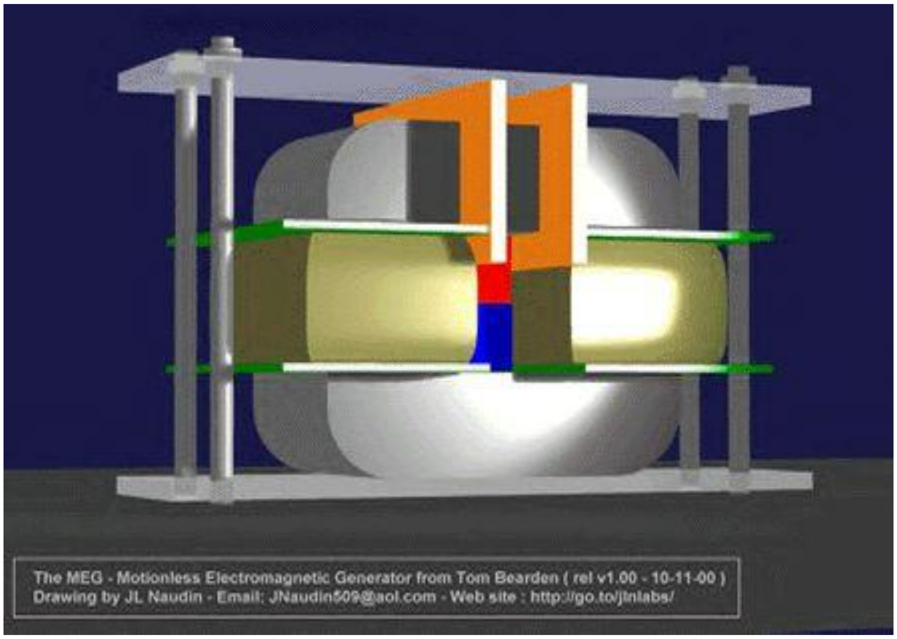
It should particularly be noted that the oscilation in the circuit does not commence until it is initiated by an oscillating signal. In order to accomplish this, it is only necessary to apply a few millivolts AC for a few seconds to the semiconductor tablet and the associated coils coupled thereto. The initial signal applied to the base of the semiconductor tablet and the lead 39 is preferably in the frequency of 5.8 to 18 MHz, and can be as high as 150 MHz. Such a signal can be applied from any conventional source and no great care appears necessary to provide a single frequency signal or eliminate noise. Once such energization has been given the circuit, and oscillations initiated, it does not appear to again be necesary to apply such a signal.This is apparently due to the feedback provided by the ferrite rod to the probe making point contact with the semiconductor.

Energy is, of course, dissipated in the lamp, or other utilization device, as the combination operates. Such energy may come from the deterioration of the semiconductor tablet as oscilaltions continue; however, if there is such deterioration it is sufficienyly slow that a power source may be operated for many months without attendance. Such a source of energy may be augmented by ambient RF radiation coupled into the resonant cavity by the external leads. This is a surprising phenomenon because the leads are small as compared to what would normally be considered an adequate antenna, and it is therefore postulated that stimulated amplification may also be a consequence of the unique electronic configuration of the semiconductors having the above-identified compositions.

Although only one embodiment of electric power pack constructed according to the principles of this invnetion has been described and illsutrated herein, many modifications and variation will be apparent to one skilled in the art. Thus, for example, a larger power pack may be axially arranged in a cylindrical container with various electronic elements arranged in the annular space therebetween. it is, therefore, to be understood that within the scope of the appended claims the invnetion may be practiced otherwise than as specifically described...

Stephen PATRICK // Thomas BEARDEN, *et al.*

Motionless Electromagnetic Generator (MEG)


The MEG - Motionless Electromagnetic Generator from Tom Bearden (rel v1.00 - 10-11-00)
Drawing by JL Naudin - Email: JNaudin509@aol.com - Web site : http://go.to/jlnlabs/

(Graphic by J. L. Naudin)

In March 2002, Stephen L. Patrick, Thomas E. Bearden, James C. Hayes, Kenneth D. Moore, and James L. Kenny received **US Patent # 6,362,718** for the Motionless Electromagnetic Generator (MEG), a scalar energy device that produces over-unity (AKA "Free Energy"); in conventional terms, the device has a Coefficient of Performance (COP) of 5.0.

In an update published on http://www.cheniere.org --- Tom Bearden's website --- he states:

"...We have now secured an agreement with the National Materials Science Laboratory of the National Academy of Science in a friendly foreign country, to do the necessary advanced research to finish the MEG for scale-up and commercial production. The first commercial units should be rolling off the production lines in about one year, and we expect them to be closed-loop self-powering systems of about 2.5 KW output, but modular...

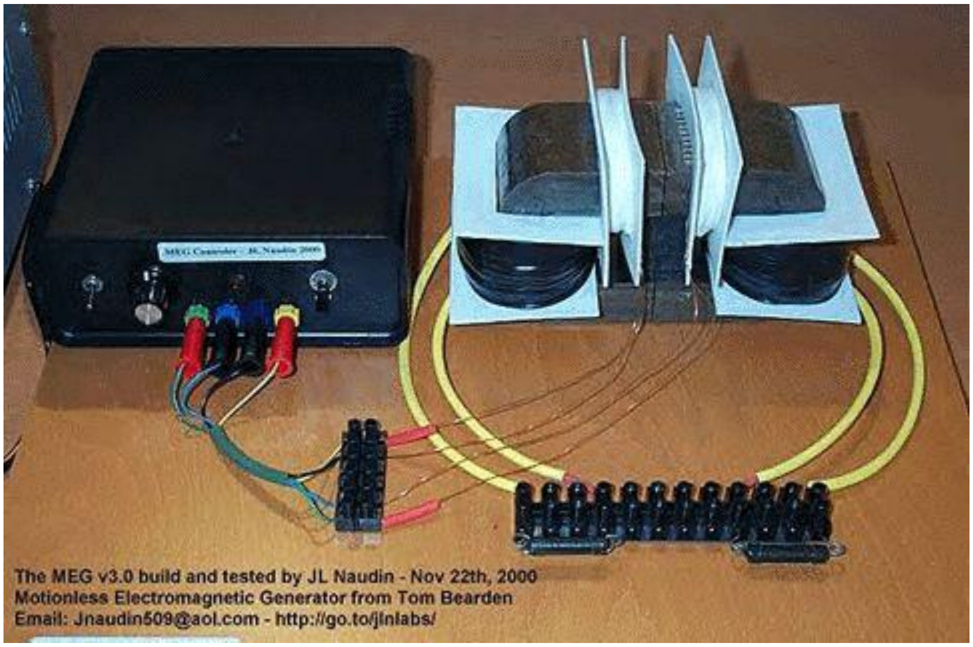
"A marvelous and very rigorous review by Myron W. Evans, who has some 600 papers in the hard literature, will be in the forthcoming second edition of *Modern Nonlinear Optics*, Wiley,

2001. I also have a paper on the MEG in one of the three volumes, and a second paper on the principles for extracting EM energy from the vacuum...

"In Magnetic Energy Limited, all business discussions and arrangements are taken care of by Dr. Lee Kenny, Managing Partner. There are five of us who are co-inventors of the MEG, and two of the others are really the principal inventors.

"Lee Kenny can be reached by E-mail at:jlkenny@ingr.com."

The MEG has been replicated by J. L. Naudin and other experimenters worldwide. Some experimenters (i.e., digi@digitoxin.dhs.org) claim that the claims of over-unity made by Patrick, Bearden, Naudin, and others are based on incorrect measurements. Naudin does not acknowledge negative feedback. Their opinions are online at: www.phact.org/e/z/bearden and



The MEG v3.0 build and tested by JL Naudin - Nov 22th, 2000
Motionless Electromagnetic Generator from Tom Bearden
Email: Jnaudin509@aol.com - http://go.to/jlnlabs/

A paper on the subject has been published in *Foundations of Physics Letters* 14 (1) 88-94 (2001); "Explanation of the Motionless Electromagnetic Generator with O(3) Electrodynamics", by P. K. Anastasovski, *et al*. The paper is online at: http://cheniere.nii.net/references/found%20phys%20letters/no%201%202001/p01.htm

J.. Naudin's MEG Project is: http://jnaudin.free.fr/html/meg.htm

An explanation of the MEG with Sach's O(3) Electrodynamics: http://www.cheniere.org/references/sachsO3.pdf

Bearden, *et al*., have published an explanatory paper, "The Motionless Electromagnetic Generator: Extracting Energy from a Permanent Magnet with Energy-Replenishing from the Active Vacuum", which was posted for a while on the Dept. of Energy website. It can be found on http://www.cheniere.org, Bearden's website.

This email letter from Bearden appeared on the internet in May 2005 (Source: http://cheniere.org/correspondence/051605.htm)

Date: Mon, 16 May 2005 12:11:01 -0500

Dear Gary,

The five inventors of the MEG are as frustrated as anyone else! We've sunk our money and enormous time in this effort for some 10 to 12 years. So we have our own money and sweat and work where our mouth is. It hasn't been funded by selling stock to the naïve public etc.

We are not out of engineering development of the MEG yet, and to get through it and into full production engineering would require about $10 to $12 million --- money we personally do not have. So far, we've not obtained the necessary financing. We did sign one financial deal, only to have our last working demonstrator promptly destroyed by the new folks in three days, against all our instructions. So we had to legally declare that agreement null and void.

Engineering the MEG, it should be clear, IS NOT JUST NORMAL ELECTRICAL ENGINEERING. We've made that point many times, and specified exactly how the machine works. Yet the biggest problem is that almost all of the venture capitalists are either EEs themselves, or employ as their second or third in command an EE, often with a Ph.D. in EE. And there the problem is that one cannot get across to the EEs that the MEG is not just a transformer, and that E-field radiations really do arise freely from the space just outside the core, re-radiating back into the core with a multitude of absorbed and reradiated signals of all sorts of phases. Unless this dense signal environment and its phasing is carefully adjusted so that the phases are generally additive, COP > 1.0 is not possible, obviously, since it means no effective *NET* energy input occurs from the activated external environment, even though *LOTS* of excess energy is being radiated back into the MEG. One doesn't seek and cannot use just a "noise" energy input from that external environment! One must have some coherence, so that the external environment inputs some *usable* free EM energy.

So to go from the business of slow, painful hand adjustment of the phasing to automatic optimization is certainly a "doable", but *it is not a simple EE problem*. In aerospace, our team (who are all aerospace engineers with substantial and lengthy experience in nonlinear systems) has worked for several decades on such problems, and we do know how to solve it and finish the product so that it's ready for full production engineering. Bluntly, electrical engineers *do not* know how to solve the problem and finish the unit, unless they've studied and worked well beyond electrical power engineering. The MEG's operation cannot even be modeled in the standard CEM/EE model.

But the EEs with venture capitalists (and some of our major national laboratories also, by the way) don't seem to be able to comprehend something that is already well-known in aerospace, in chaotic systems work, and in dense signal environments work.

Let me speak very plainly. That lack of understanding of such systems, and the use of a horribly fouled old electrical engineering model in our power engineering, is why nationally we have a horribly vulnerable centralized electrical power distribution and "control" system that violates almost every principle of multiloop servomechanism control theory in the book. It isn’t just an EE problem; it’s a multiloop servomechanism control problem. Our national centralized electrical power system is so fragile and so vulnerable that even a small portable EMP weapon (a "shooter", as commonly known in the trade), really good hackers, and many other simple things can keep it surging out of control and collapsing indefinitely with ridiculous ease.

If one wishes a more accurate grasp of the energy situation, see Matt Simmons’ presentations downloadable from the Simmons International website. There you get the truth, not political fiction, and by one of the firms that widely funds energy projects worldwide. Further, a single scalar interferometer can lay the entire system down at will, and keep it down forever. Since even the Japanese Yakuza have such interferometers and have been using them since early 1990 to engineer the weather over our heads (see Scott Stevens’ website for a meteorologist’s beautiful presentation of the resulting weather engineering phenomena), obviously somewhere along the line they are going to devote one of those interferometers to downing the entire U.S. electrical power system and keeping it down. And when that happens, there isn’t going to be any functioning centralized electric power in the U.S. from then on, period. Easy to surmise the catastrophic economic collapse that then will ensue, paralyzing and defeating the United States without a single missile, nuclear bomber, nuclear submarine, etc.

Our fellows do know about scalar interferometers, weather engineering, and the works --- but they keep it so closely locked up that most of our decision makers are not aware of it, even though Secretary of Defense Cohen was briefed on it and publicly confirmed such weapons in April 1997. Meanwhile, our present national power system and national energy policy are just a great disaster waiting to happen.

We do continue in our search for the necessary funding, with a financial arrangement we can tolerate, and with a financial partner who can understand that he cannot just run in some good EEs and build a MEG and turn them out like pretzels. Or in fact that cannot be done with any other legitimate COP>1.0 system, without the proper completion of Engineering Development and then Production Engineering.

We think we are again getting close to obtaining the necessary capitalization for the MEG, but will just have to wait and see how it turns out this time around.

Best wishes,

Tom Bearden

[Photo by Marcia Stockton <aeditua@hughes.net> , 2001; Used with Permission]

Cheniere Press's store for books and DVDs is at http://cheniere.org/sales/online-store.htm.

US Patent # 6,362,718

Motionless Electromagnetic Generator

Patrick , *et al*.
(March 26, 2002)

Abstract ~

An electromagnetic generator without moving parts includes a permanent magnet and a magnetic core including first and second magnetic paths. A first input coil and a first output coil extend around portions of the first magnetic path, while a second input coil and a second output coil extend around portions of the second magnetic path. The input coils are alternatively pulsed to provide induced current pulses in the output coils. Driving electrical current through each of the input coils reduces a level of flux from the permanent magnet within the magnet path around which the input coil extends. In an alternative embodiment of an electromagnetic generator, the magnetic core includes annular spaced-apart plates, with posts and permanent magnets extending in an alternating fashion between the plates. An output coil extends around each of these posts. Input coils extending around portions of the plates are pulsed to cause the induction of current within the output coils.

Inventors: **Patrick, Stephen L.** (2511 Woodview Dr. SE., Huntsville, AL 35801); **Bearden, Thomas E.** (2211 Cove Rd., Huntsville, AL 35801); **Hayes, James C.** (16026 Deaton Dr. SE., Huntsville, AL 35803); **Moore, Kenneth D.** (1704 Montdale Rd., Huntsville, FL 35801); **Kenny, James L.** (925 Tascosa Dr., Huntsville, AL 35802)

Appl. No.: 656313 ~ Filed September 6, 2000
Current U.S. Class: 336/214 ~ Intern'l Class: H01F 027/24
Field of Search: 363/16,24,25,26,56.06,56.08,133,134 336/15,110,155,177,180,213,214,221,222

References Cited (U.S. Patent Documents) ~

2,153,378 (Apr., 1939), Kramer (171/95) ~ 2,892,155 (Jun., 1959), Radus, et al. (324/117) ~ 3,079,535 (Feb., 1963), Schultz (317/201) ~ 3,165,723 (Jan., 1965), Radus (340/174) ~ 3,228,013 (Jan., 1966), Olson, et al. (340/174) ~ 3,254,268 (May., 1966), Radus, et al. (317/14) ~ 3,316,514 (Apr., 1967), Radus, et al. (335/291) ~ 3,368,141 (Feb., 1968), Subieta-Garron (323/44) ~ 3,391,358 (Jul., 1968), Bratkowski, et al. (335/21) ~ 3,453,876 (Jul., 1969), Radus (73/141) ~ 3,517,300 (Jun., 1970), McMurray. ~ 3,569,947 (Mar., 1971), Radus (340/174) ~ 3,599,074 (Aug., 1971), Adams. ~ 4,006,401 (Feb., 1977), de Rivas (323/92)
4,077,001 (Feb., 1978), Richardson (323/92) ~ 4,366,532 (Dec., 1982), Rosa, et al. (363/69) ~ 4,482,945 (Nov., 1984), Wolf, et al. (363/129) ~ 4,554,524 (Nov., 1985), Radus (337/3) ~ 4,853,668 (Aug., 1989), Bloom (336/214) ~ 4,864,478 (Sep., 1989), Bloom (363/16) ~ 4,904,926 (Feb., 1990), Pasichinskyj (323/362) ~ 5,011,821 (Apr., 1991), McCullough (505/1) ~ 5,221,892 (Jun., 1993), Sullivan, et al. (323/362) ~ 5,245,521 (Sep., 1993), Spreen (363/37) ~ 5,327,015 (Jul., 1994), Hacket (505/211) ~ 5,335,163 (Aug., 1994), Seiersen (363/126) ~ 5,694,030 (Dec., 1997), Sato, et al. (323/282)

Other References ~

Raymond J. Radus, "Permanent-Magnet Circuit using a `Flux-Transfer` Principle," *Engineers' Digest*, 24(1-6) Jan.-Jun. 1963, p. 86.

Robert O'Handley, *Modern Magnetic Materials, Principles and Applications*, John Wiley & Sons, Inc., 2000, pp. 456-468.

Robert C. Weast, Editor, *CRC Handbook of Chemistry and Physics*, 1978-1979, p. B-50.
Honeywell.com web site, "amorphous metals".

Primary Examiner: Nguyen; Matthew ~ Attorney, Agent or Firm: Friedland; Norman

Description ~

1. Field of Invention ~

This invention relates to a magnetic generator used to produce electrical power without moving parts, and, more particularly, to such a device having a capability, when operating, of producing electrical power without an external application of input power through input coils.

2. Description of the Related Art ~

The patent literature describes a number of magnetic generators, each of which includes a permanent magnet, two magnetic paths external to the permanent magnet, each of which extends between the opposite poles of the permanent magnet, switching means for causing magnetic flux to flow alternately along each of the two magnetic paths, and one or more output coils in which current is induced to flow by means of changes in the magnetic field within the device. These devices operate in accordance with an extension of Faraday's Law, indicating that an electrical current is induced within a conductor within a changing magnetic field, even if the source of the magnetic field is stationary.

A method for switching magnetic flux to flow predominantly along either of two magnetic paths between opposite poles of a permanent magnet is described as a "flux transfer" principle by R. J. Radus in Engineer's Digest, Jul. 23, 1963. This principle is used to exert a powerful magnetic force at one end of both the north and south poles and a very low force at the other end, without being used in the construction of a magnetic generator. This effect can be caused mechanically, by keeper movement, or electrically, by driving electrical current through one or more control windings extending around elongated versions of the pole pieces 14. Several devices using this effect are described in U.S. Pat. Nos. 3,165,723, 3,228,013, and 3,316,514, which are incorporated herein by reference.

Another step toward the development of a magnetic generator is described in U.S. Pat. No. 3,368,141, which is incorporated herein by reference, as a device including a permanent magnet in combination with a transformer having first and second windings about a core, with two paths for magnetic flux leading from each pole of the permanent magnet to either end of the core, so that, when an alternating current induces magnetic flux direction changes in the core, the magnetic flux from the permanent magnet is automatically directed through the path which corresponds with the direction taken by the magnetic flux through the core due to the current. In this way, the magnetic flux is intensified. This device can be used to improve the power factor of a typically inductively loaded alternating current circuit.

Other patents describe magnetic generators in which electrical current from one or more output coils is described as being made available to drive a load, in the more conventional manner of a generator. For example, U.S. Pat. No. 4,006,401, which is incorporated herein by reference, describes an electromagnetic generator including permanent magnet and a core member, in which the magnetic flux flowing from the magnet in the core member is rapidly alternated by switching to generate an alternating current in a winding on the core member. The device includes a permanent magnet and two separate magnetic flux circuit paths between the north and south poles of the magnet. Each of the circuit paths includes two switching means for alternately opening and closing the circuit paths, generating an alternating current in a winding on the core member. Each of the switching means includes a switching magnetic circuit intersecting the circuit path, with the switching magnetic circuit having a coil through which current is driven to induce magnetic flux to saturate the circuit path extending to the permanent magnet. Power to drive these coils is derived directly from the output of a continuously applied alternating current source. What is needed is an electromagnetic generator not requiring the application of such a current source.

U.S. Pat. No. 4,077,001, which is incorporated herein by reference, describes a magnetic generator, or dc/dc converter, comprising a permanent magnet having spaced-apart poles and a permanent magnetic field extending between the poles of the magnet. A variable-reluctance core is disposed in the field in fixed relation to the magnet and the reluctance of the core is varied to cause the pattern of lines of force of the magnetic field to shift. An output conductor is disposed in the field in fixed relation to the magnet and is positioned to be cut by the shifting lines of permanent magnetic force so that a voltage is induced in the conductor. The magnetic flux is switched between alternate paths by means of switching coils extending around portions of the core, with the flow of current being alternated between these switching coils by means of a pair of transistors driven by the outputs of a flip-flop. The input to the flip flop is driven by an adjustable frequency oscillator. Power for this drive circuit is supplied through an additional, separate power source. What is needed is a magnetic generator not requiring the application of such a power source.

U.S. Pat. No. 4,904,926, which is incorporated herein by reference, describes another magnetic generator using the motion of a magnetic field. The device includes an electrical winding defining a magnetically conductive zone having bases at each end, the winding including elements for the removing of an induced current therefrom. The generator further includes two pole magnets, each having a first and a second pole, each first pole in magnetic communication with one base of the magnetically conductive zone. The generator further includes a third pole magnet, the third pole magnet oriented intermediately of the first poles of the two pole electromagnets, the third pole magnet having a magnetic axis substantially transverse to an axis of the magnetically conductive zone, the third magnet having a pole nearest to the conductive zone and in magnetic attractive relationship to the first poles of the two pole electromagnets, in which the first poles thereof are like poles. Also included in the generator are elements, in the form of windings, for cyclically reversing the magnetic polarities of the electromagnets. These reversing means, through a cyclical change in the magnetic polarities of the electromagnets, cause the magnetic flux lines associated with the magnetic attractive relationship between the first poles of the electromagnets and the nearest pole of the third magnet to correspondingly reverse, causing a wiping effect across the magnetically conductive zone, as lines of magnetic flux swing between respective first poles of the two electromagnets, thereby inducing electron movement within the output windings and thus generating a flow of current within the output windings.

U.S. Pat. No. 5,221,892, which is incorporated herein by reference, describes a magnetic generator in the form of a direct current flux compression transformer including a magnetic envelope having poles defining a magnetic axis and characterized by a pattern of magnetic flux lines in polar symmetry about the axis. The magnetic flux lines are spatially displaced relative to the magnetic envelope using control elements which are mechanically stationary relative to the core. Further provided are inductive elements which are also mechanically stationary relative to the magnetic envelope. Spatial displacement of the flux relative to the inductive elements causes a flow of electrical current. Further provided are magnetic flux valves which provide for the varying of the magnetic reluctance to create a time domain pattern of respectively enhanced and decreased magnetic reluctance across the magnetic valves, and, thereby, across the inductive elements.

Other patents describe devices using superconductive elements to cause movement of the magnetic flux. These devices operate in accordance with the Meissner effect, which describes the expulsion of magnetic flux from the interior of a superconducting structure as the structure undergoes the transition to a superconducting phase. For example, U.S. Pat. No. 5,011,821, which is incorporated herein by reference, describes an electric power generating device including a bundle of conductors which are placed in a magnetic field generated by north and south pole pieces of a permanent magnet. The magnetic field is shifted back and forth through the bundle of conductors by a pair of thin films of superconductive material. One of the thin films is placed in the superconducting state while the other thin film is in a non-superconducting state. As the states are cyclically reversed between the two films, the magnetic field is deflected back and forth through the bundle of conductors.

U.S. Pat. No. 5,327,015, which is incorporated herein by reference, describes an apparatus for producing an electrical impulse comprising a tube made of superconducting material, a source of magnetic flux mounted about one end of the tube, a means, such as a coil, for intercepting the flux mounted along the tube, and a means for changing the temperature of the superconductor mounted about the tube. As the tube is progressively made superconducting, the magnetic field is trapped within the tube, creating an electrical impulse in the means for intercepting. A reversal of the superconducting state produces a second pulse.

None of the patented devices described above use a portion of the electrical power generated within the device to power the reversing means used to change the path of magnetic flux. Thus, like conventional rotary generators, these devices require a steady input of power, which may be in the form of electrical power driving the reversing means of one of these magnetic generators or the torque driving the rotor of a conventional rotary generator. Yet, the essential function of the magnetic portion of an electrical generator is simply to switch magnetic fields in accordance with precise timing. In most conventional applications of magnetic generators, the voltage is switched across coils, creating magnetic fields in the coils which are used to override the fields of permanent magnets, so that a substantial amount of power must be furnished to the generator to power the switching means, reducing the efficiency of the generator.

Recent advances in magnetic material, which have particularly been described by Robert C. O'Handley in Modern Magnetic Materials, Principles and Applications, John Wiley & Sons, New York, pp. 456-468, provide nanocrystalline magnetic alloys, which are particularly well suited forth rapid switching of magnetic flux. These alloys are primarily composed of crystalline grains, or crystallites, each of which has at least one dimension of a few nanometers. Nanocrystalline materials may be made by heat-treating amorphous alloys which form precursors for the nanocrystalline materials, to which insoluble elements, such as copper, are added to promote massive nucleation, and to which stable, refractory alloying materials, such as niobium or tantalum carbide are added to inhibit grain growth. Most of the volume of nanocrystalline alloys is composed of randomly distributed crystallites having dimensions of about 2-40 nm. These crystallites are nucleated and grown from an amorphous phase, with insoluble elements being rejected during the process of crystallite growth. In magnetic terms, each crystallite is a single-domain particle. The remaining volume of nanocrystalline alloys is made up of an amorphous phase in the form of grain boundaries having a thickness of about 1 nm.

Magnetic materials having particularly useful properties are formed from an amorphous Co--Nb--B (cobalt-niobium-boron) alloy having near-zero magnetostriction and relatively strong magnetization, as well as good mechanical strength and corrosion resistance. A process of annealing this material can be varied to change the size of crystallites formed in the material, with a resulting strong effect on DC coercivity. The precipitation of nanocrystallites also enhances AC performance of the otherwise amorphous alloys.

Other magnetic materials are formed using iron-rich amorphous and nanocrystalline alloys, which generally show larger magnetization that the alloys based on cobalt. Such materials are, for example, Fe--B--Si--Nb--Cu (iron-boron-silicon-niobium-copper) alloys. While the permeability of iron-rich amorphous alloys is limited by their relatively large levels of magnetostriction, the formation of a nanocrystalline material from such an amorphous alloy dramatically reduces this level of magnetostriction, favoring easy magnetization.

Advances have also been made in the development of materials for permanent magnets, particularly in the development of materials including rare earth elements. Such materials include samarium cobalt, SmCo.sub.5, which is used to form a permanent magnet material having the highest resistance to demagnetization of any known material. Other magnetic materials are made, for example, using combinations of iron, neodymium, and boron.

Summary of the Invention ~

It is a first objective of the present invention to provide a magnetic generator which a need for an external power source during operation of the generator is eliminated.

It is a second objective of the present invention to provide a magnetic generator in which a magnetic flux path is changed without a need to overpower a magnetic field to change its direction.

It is a third objective of the present invention to provide a magnetic generator in which the generation of electricity is accomplished without moving parts.

In the apparatus of the present invention, the path of the magnetic flux from a permanent magnet is switched in a manner not requiring the overpowering of the magnetic fields. Furthermore, a process of self-initiated iterative switching is used to switch the magnetic flux from the permanent magnet between alternate magnetic paths within the apparatus, with the power to operate the iterative switching being provided through a control circuit consisting of components known to use low levels of power. With self-switching, a need for an external power source during operation of the generator is eliminated, with a separate power source, such as a battery, being used only for a very short time during start-up of the generator.

According to a first aspect of the present invention, an electromagnetic generator is provided, including a permanent magnet, a magnetic core, first and second input coils, first and second output coils, and a switching circuit. The permanent magnet has magnetic poles at opposite ends. The magnetic core includes a first magnetic path, around which the first input and output coils extend, and a second magnetic path, around which the second input and output coils extend, between opposite ends of the permanent magnet. The switching circuit drives electrical current alternately through the first and second input coils. The electrical current driven through the first input oil causes the first input coil to produce a magnetic field opposing a concentration of magnetic flux from the permanent magnet within the first magnetic path. The electrical current driven through the second input coil causes the second input coil to produce a magnetic field opposing a concentration of magnetic flux from the permanent magnet within the second magnetic path.

According to another aspect of the present invention, an electromagnetic generator is provided, including a magnetic core, a plurality of permanent magnets, first and second pluralities of input coils, a plurality of output coils, and a switching circuit. The magnetic core includes a pair of spaced-apart plates, each of which has a central aperture, and first and second pluralities of posts extending between the spaced-apart plates. The permanent magnets each extend between the pair of spaced apart plates. Each permanent magnet has magnetic poles at opposite ends, with the magnetic fields of all the permanent magnets being aligned to extend in a common direction. Each input coil extends around a portion of a plate within the spaced-apart plates, between a post and a permanent magnet. An output coil extends around each post. The switching circuit drives electrical current alternately through the first and second pluralities of input coils. Electrical current driven through each input coil in the first plurality of input coils causes an increase in magnetic flux within each post within the first plurality of posts from permanent magnets on each side of the post and a decrease in magnetic flux within each post within the second plurality of posts from permanent magnets on each side of the post. Electrical current driven through each input coil in the second plurality of input coils causes a decrease in magnetic flux within each post within the first plurality of posts from permanent magnets on each side of the post and an increase in magnetic flux within each post within the second plurality of posts from permanent magnets on each side of the post.

Brief Description of the Drawings ~

Figure 1 is a partly schematic front elevation of a magnetic generator and associated electrical circuits built in accordance with a first version of the first embodiment of the present invention;

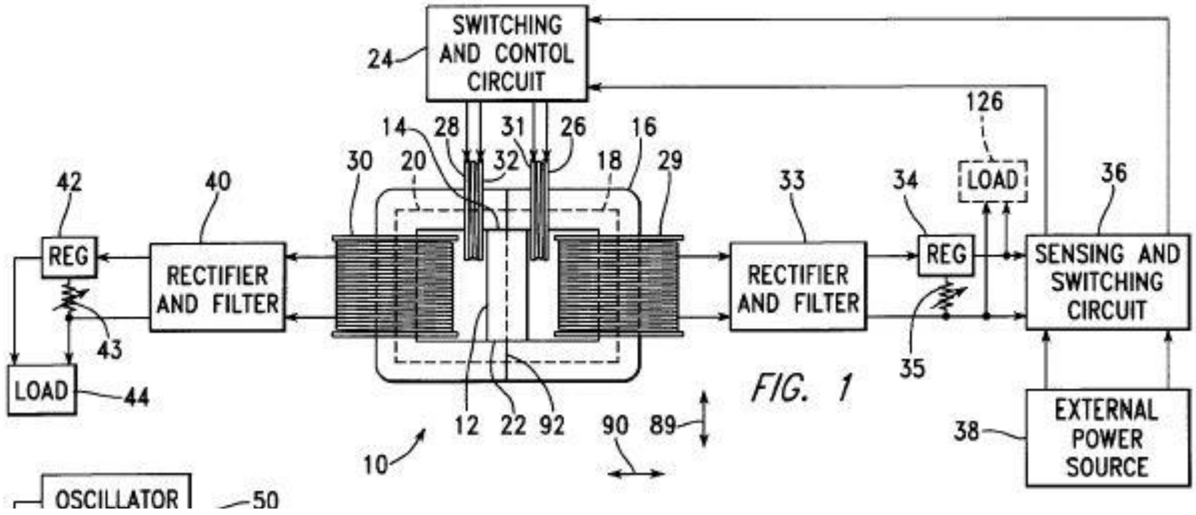


FIG. 1

Figure 2 is a schematic view of a first version of a switching and control circuit within the associated electrical circuits of Figure 1;

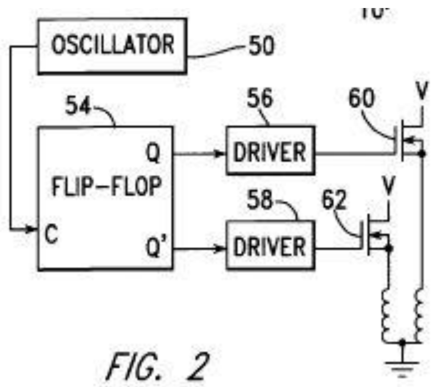


FIG. 2

Figure 3 is a graphical view of drive signals produced within the circuit of Figure 2;

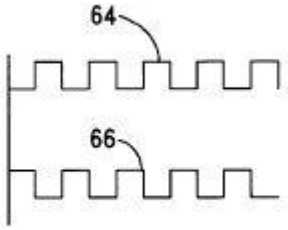


FIG. 3

Figure 4 is a schematic view of a second version of a switching and control circuit within the associated electrical circuits of Figure 1;

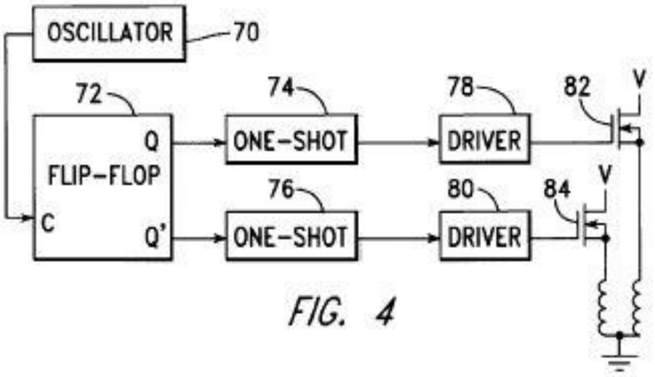


FIG. 4

Figure 5 is a graphical view of drive signals produced within the circuit of Figure 3;

FIG. 5

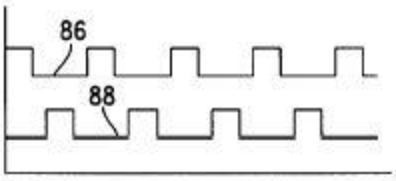


Figure 6A is a graphical view of a first drive signal within the apparatus of Figure 1;

FIG. 6A

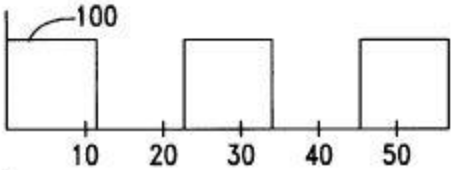


FIG. 6B

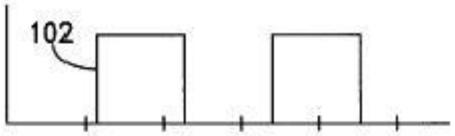


FIG. 6C

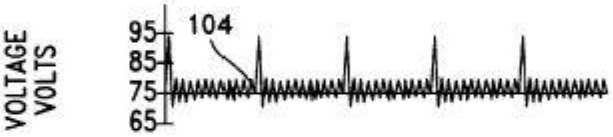


FIG. 6D

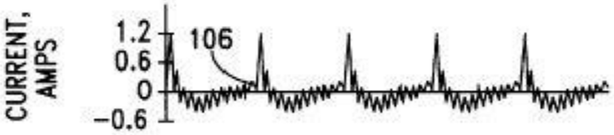


FIG. 6E

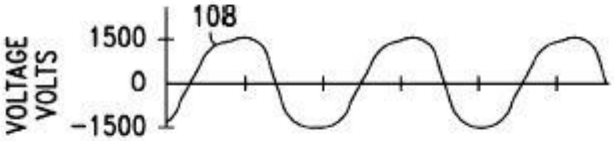


FIG. 6F

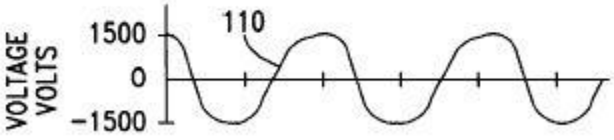


FIG. 6G

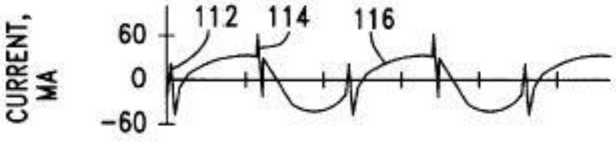


FIG. 6H

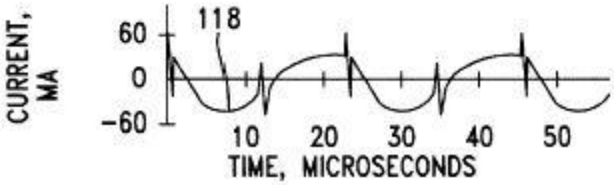


Figure 6B is a graphical view of a second drive signal within the apparatus of Figure 1;

Figure 6C is a graphical view of an input voltage signal within the apparatus of Figure 1;

Figure 6D is a graphical view of an input current signal within the apparatus of Figure 1;

Figure 6E is a graphical view of a first output voltage signal within the apparatus of Figure 1;

Figure 6F is a graphical view of a second output voltage signal within the apparatus of Figure 1;

Figure 6G is a graphical view of a first output current signal within the apparatus of Figure 1;

Figure 6H is a graphical view of a second output current signal within the apparatus of Figure 1;

Figure 7 is a graphical view of output power measured within the apparatus of Figure 1, as a function of input voltage;

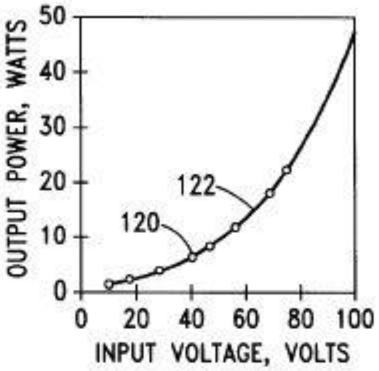


FIG. 7

Figure 8 is a graphical view of a coefficient of performance, calculated from measurements within the apparatus of Figure 1, as a function of input voltage;

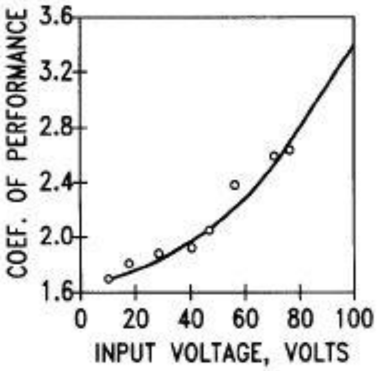


FIG. 8

Figure 9 is a cross-sectional elevation of a second version of the first embodiment of the present invention;

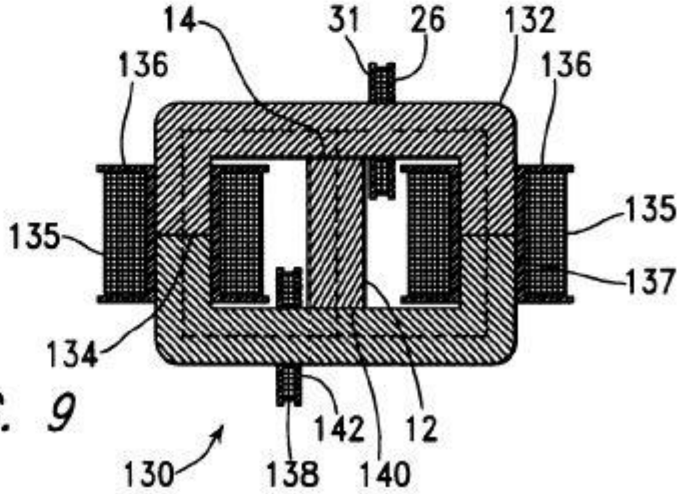


FIG. 9

Figure 10 is a top view of a magnetic generator built in accordance with a first version of a second embodiment of the present invention;

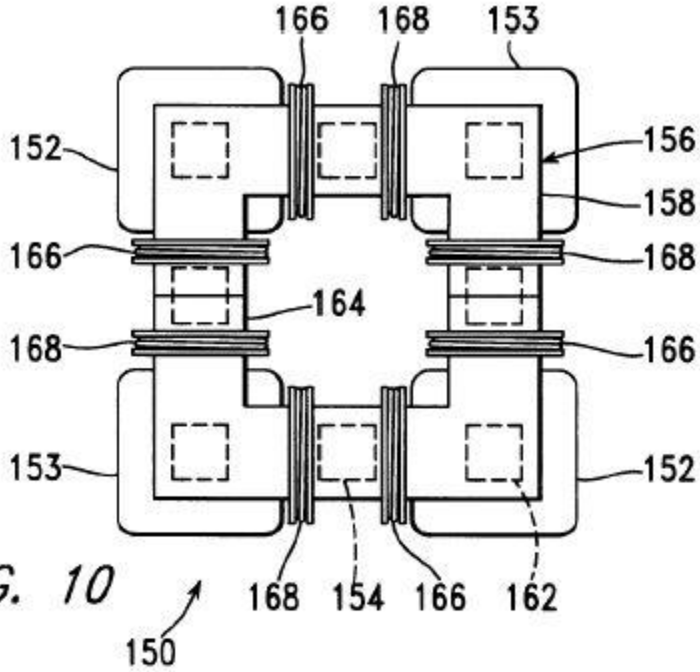


FIG. 10

Figure 11 is a front elevation of the magnetic generator of Figure 10; and

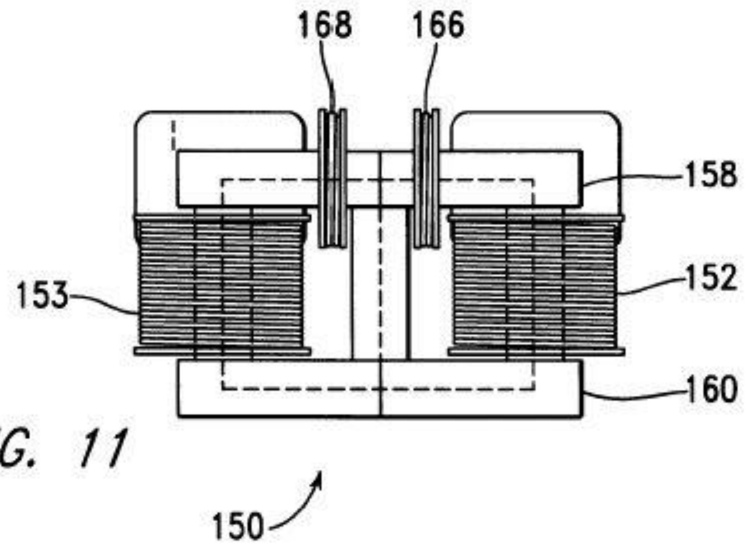


FIG. 11

Figure 12 is a top view of a magnetic generator built in accordance with a second version of the second embodiment of the present invention.

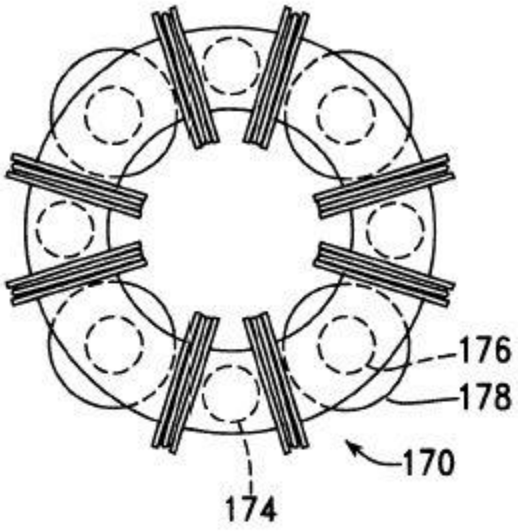


FIG. 12

Detailed Description of the Invention ~

Figure 1 is a partly schematic front elevation of an electromagnetic generator 10, built in accordance with a first embodiment of the present invention to include a permanent magnet 12 to supply input lines of magnetic flux moving from the north pole 14 of the magnet 12 outward into magnetic flux path core material 16. The flux path core material 16 is configured to form a right magnetic path 18 and a left magnetic path 20, both of which extend externally between the north pole 14 and the south pole 22 of the magnet 12. The electromagnetic generator 10 is driven by means of a switching and control circuit 24, which alternately drives electrical current through a right input coil 26 and a left input coil 28. These input coils 26, 28 each extend around a portion of the core material 16, with the right input coil 26 surrounding a portion of the right magnetic path 18 and with the left input coil 28 surrounding a portion of the left magnetic path 20. A right output coil 29 also surrounds a portion of the right magnetic path 18, while a left output coil 30 surrounds a portion of the left magnetic path 20.

In accordance with a preferred version of the present invention, the switching and control circuit 24 and the input coils 26, 28 are arranged so that, when the right input coil 26 is energized, a north magnetic pole is present at its left end 31, the end closest to the north pole 14 of the permanent magnet 12, and so that, when the left input coil 28 is energized, a north magnetic pole is present at its right end 32, which is also the end closest to the north pole 14 of the permanent magnet 12. Thus, when the right input coil 26 is magnetized, magnetic flux from the permanent magnet 12 is repelled from extending through the right input coil 26. Similarly, when the left input coil 28 is magnetized, magnetic flux from the permanent magnet 12 is repelled from extending through the left input coil 28.

Thus, it is seen that driving electrical current through the right input coil 26 opposes a concentration of flux from the permanent magnet 12 within the right magnetic path 18, causing at least some of this flux to be transferred to the left magnetic path 20. On the other hand, driving electrical current through the left input coil 28 opposes a concentration of flux from the permanent magnet 12 within the left magnetic path 20, causing at least some of this flux to be transferred to the right magnetic path 18.

While in the example of Figure 1, the input coils 26, 28 are placed on either side of the north pole of the permanent magnet 12, being arranged along a portion of the core 16 extending from the north pole of the permanent magnet 12, it is understood that the input coils 26, 28 could as easily be alternately placed on either side of the south pole of the permanent magnet 12, being arranged along a portion of the core 16 extending from the south pole of the permanent magnet 12, with the input coils 26, 28 being wired to form, when energized, magnetic fields having south poles directed toward the south pole of the permanent magnet 12. In general, the input coils 26, 28 are arranged along the magnetic core on either side of an end of the permanent magnet forming a first pole, such as a north pole, with the input coils being arranged to produce magnetic fields of the polarity of the first pole directed toward the first pole of the permanent magnet.

Further in accordance with a preferred version of the present invention, the input coils 26, 28 are never driven with so much current that the core material 16 becomes saturated. Driving the core material 16 to saturation means that subsequent increases in input current can occur without effecting corresponding changes in magnetic flux, and therefore that input power can be wasted. In this way, the apparatus of the present invention is provided with an advantage in terms of the efficient use of input power over the apparatus of U.S. Pat. No. 4,000,401, in which a portion both ends of each magnetic path is driven to saturation to block flux flow. In the electromagnetic generator 10, the switching of current flow within the input coils 26, 28 does not need to be sufficient to stop the flow of flux in one of the magnetic paths 18, 20 while promoting the flow of magnetic flux in the other magnetic path. The electromagnetic generator 10 works by changing the flux pattern; it does not need to be completely switched from one side to another.

Experiments have determined that this configuration is superior, in terms of the efficiency of using power within the input coils 26, 28 to generate electrical power within the output coils 29, 30, to the alternative of arranging input coils and the circuits driving them so that flux from the permanent magnet is driven through the input coils as they are energized. This arrangement of the present invention provides a significant advantage over the prior-art methods shown, for example, in U.S. Pat. No. 4,077,001, in which the magnetic flux is driven through the energized coils.

The configuration of the present invention also has an advantage over the prior-art configurations of U.S. Pat. Nos. 3,368,141 and 4,077,001 in that the magnetic flux is switched between two alternate magnetic paths 18, 20 with only a single input coil 26, 28 surrounding each of the alternate magnetic paths. The configurations of U.S. Pat. Nos. 3,368,141 and 4,077,001 each require two input coils on each of the magnetic paths. This advantage of the present invention is significant both in the simplification of hardware and in increasing the efficiency of power conversion.

The right output coil 29 is electrically connected to a rectifier and filter 33, having an output driven through a regulator 34, which provides an output voltage adjustable through the use of a potentiometer 35. The output of the linear regulator 34 is in turn provided as an input to a sensing and switching circuit 36. Under start up conditions, the sensing and switching circuit 36 connects the switching and control circuit 24 to an external power source 38, which is, for example, a starting battery. After the electromagnetic generator 10 is properly started, the sensing and switching circuit 36 senses that the voltage available from regulator 34 has reached a predetermined level, so that the power input to the switching and control circuit 24 is switched from the external power source 38 to the output of regulator 34. After this switching occurs, the electromagnetic generator 10 continues to operate without an application of external power.

The left output coil 30 is electrically connected to a rectifier and filter 40, the output of which is connected to a regulator 42, the output voltage of which is adjusted by means of a potentiometer 43. The output of the regulator 42 is in turn connected to an external load 44.

Figure 2 is a schematic view of a first version of the switching and control circuit 24. An oscillator 50 drives the clock input of a flip-flop 54, with the Q and Q' outputs of the flip-flop 54 being connected through driver circuits 56, 58 to power FETS 60, 62 so that the input coils 26, 28 are alternately driven. In accordance with a preferred version of the present invention, the voltage V applied to the coils 26, 28 through the FETS 60, 62 is derived from the output of the sensing and switching circuit 36.

Figure 3 is a graphical view of the signals driving the gates of FETS 60, 62 of Figure 2, with the voltage of the signal driving the gate of FET 60 being represented by line 64, and with the voltage of the signal driving FET 62 being represented by line 66. Both of the coils 26, 28 are driven with positive voltages.

Figure 4 is a schematic view of a second version of the switching and control circuit 24. In this version, an oscillator 70 drives the clock input of a flip-flop 72, with the Q and Q' outputs of the flip-flop 72 being connected to serve as triggers for one-shots 74, 76. The outputs of the one-shots 74, 76 are in turn connected through driver circuits 78, 80 to drive FETS 82, 84, so that the input coils 26, 28 are alternately driven with pulses shorter in duration than the Q and Q' outputs of the flip flop 72.

Figure 5 is a graphical view of the signals driving the gates of FETS 82, 84 of FIG. 4, with the voltage of the signal driving the gate of FET 82 being represented by line 86, and with the voltage of the signal driving the gate of FET 84 being represented by line 88.

Referring again to Figure 1, power is generated in the right output coil 29 only when the level of magnetic flux is changing in the right magnetic path 18, and in the left output coil 30 only when the level of magnetic flux is changing in the left magnetic path 20. It is therefore desirable to determine, for a specific magnetic generator configuration, the width of a pulse providing the most rapid practical change in magnetic flux, and then to provide this pulse width either by varying the frequency of the oscillator 50 of the apparatus of Figure 2, so that this pulse width is provided with the signals shown in Figure 3, or by varying the time constant of the one-shots 74, 76 of Figure 4, so that this pulse width is provided by the signals of Figure 5 at a lower oscillator frequency. In this way, the input coils are not left on longer than necessary. When either of the input coils is left on for a period of time longer than that necessary to produce the change in flux direction, power is being wasted through heating within the input coil without additional generation of power in the corresponding output coil.

A number of experiments have been conducted to determine the adequacy of an electromagnetic generator built as the generator 10 in Figure 1 to produce power both to drive the switching and control logic, providing power to the input coils 26, 28, and to drive an external load 44. In the configuration used in this experiment, the input coils 26, 28 had 40 turns of 18-gauge copper wire, and the output coils 29, 30 had 450 turns of 18-gauge copper wire. The permanent magnet 12 had a height of 40 mm (1.575 in. between its north and south poles, in the direction of arrow 89, a width of 25.4 mm (1.00 in.), in the direction of arrow 90, and in the other direction, a depth of 38.1 mm (1.50 in.). The core 16 had a height, in the direction of arrow 89, of 90 mm (3.542 in.), a width, in the direction of arrow 90, of 135 mm (5.315 in.) and a depth of 70 mm (2.756 in.). The core 16 had a central hole with a height, in the direction of arrow 89, of 40 mm (1.575 mm) to accommodate the magnet 12, and a width, in the direction of arrow 90, of 85 mm (3.346 in.). The core 16 was fabricated of two "C"-shaped halves, joined at lines 92, to accommodate the winding of output coils 29, 30 and input coils 26, 28 over the core material.

The core material was a laminated iron-based magnetic alloy sold by Honeywell as METGLAS Magnetic Alloy 2605SA1. The magnet material was a combination of iron, neodymium, and boron.

The input coils 26, 28 were driven at an oscillator frequency of 87.5 KHz, which was determined to produce optimum efficiency using a switching control circuit configured as shown in Figure 2. This frequency has a period of 11.45 microseconds. The flip flop 54 is arranged, for example, to be set and reset on rising edges of the clock signal input from the oscillator, so that each pulse driving one of the FETS 60, 62 has a duration of 11.45 microseconds, and so that sequential pulses are also separated to each FET are also separated by 11.45 microseconds.

Figure 6A-6H are graphical views of signals which simultaneously occurred within the apparatus of Figures 1 and 2 during operation with an applied input voltage of 75 volts. Figure 6A shows a first drive signal 100 driving FET 60, which conducts to drive the right input coil 26. Figure 6B is shows a second drive signal 102 driving FET 62, which conducts to drive the left input coil 28.

Figures 6C and 6D show voltage and current signals associated with current driving both the FETS 60, 62 from a battery source. Figure 6C shows the level 104 of voltage V. While the nominal voltage of the battery was 75 volts, a decaying transient signal 106 is superimposed on this voltage each time one of the FETS 60, 62 is switched on to conduct. The specific pattern of this transient signal depends on the internal resistance of the battery, as well as on a number of characteristics of the magnetic generator 10. Similarly, Figure 6D shows the current 106 flowing into both FETS 60, 62 from the battery source. Since the signals 104, 106 show the effects of current flowing into both FETS 60, 62 the transient spikes are 11.45 microseconds apart.

Figure 6E-6H show voltage and current levels measured at the output coils 29, 30. Figure 6E shows a voltage output signal 108 of the right output coil 29, while Figure 6F shows a voltage output signal 110 of the left output coil 30. For example, the output current signal 116 of the right output coil 29 includes a first transient spike 112 caused when the a current pulse in the left input coil 28 is turned on to direct magnetic flux through the right magnetic path 18, and a second transient spike 114 caused when the left input coil 28 is turned off with the right input coil 26 being turned on. Figure 6G shows a current output signal 116 of the right output coil 29, while Figure 6H shows a current output signal 118 of the left output coil 30.

Figure 7 is a graphical view of output power measured using the electromagnetic generator 10 and eight levels of input voltage, varying from 10v to 75v. The oscillator frequency was retained at 87.5 KHz. The measurement points are represented by indicia 120, while the curve 122 is generated by polynomial regression analysis using a least squares fit.

Figure 8 is a graphical view of a coefficient of performance, defined as the ratio of the output power to the input power, for each of the measurement points shown in Figure 7. At each measurement point, the output power was substantially higher than the input power. Real power measurements were computed at each data point using measured voltage and current levels, with the results being averaged over the period of the signal. These measurements agree with RMS power measured using a Textronic THS730 digital oscilloscope.

While the electromagnetic generator 10 was capable of operation at much higher voltages and currents without saturation, the input voltage was limited to 75 volts because of voltage limitations of the switching circuits being used. Those skilled in the relevant art will understand that components for switching circuits capable of handling higher voltages in this application are readily available. The experimentally-measured data was extrapolated to describe operation at an input voltage of 100 volts, with the input current being 140 ma, the input power being 14 watts, and with a resulting output power being 48 watts for each of the two output coils 29, 30, at an average output current of 12 ma and an average output voltage of 4000 volts. This means that for each of the output coils 29, 30, the coefficient of performance would be 3.44.

While an output voltage of 4000 volts may be needed for some applications, the output voltage can also be varied through a simple change in the configuration of the electromagnetic generator 10. The output voltage is readily reduced by reducing the number of turns in the output windings. If this number of turns is decreased from 450 to 12, the output voltage is dropped to 106.7, with a resulting increase in output current to 0.5 amps for each output coil 29, 30. In this way, the output current and voltage of the electromagnetic generator can be varied by varying the number of turns of the output coils 29, 30, without making a substantial change in the output power, which is instead determined by the input current, which determines the amount of magnetic flux shuttled during the switching process.

The coefficients of performance, all of which were significantly greater than 1, plotted in Figure 8 indicate that the output power levels measured in each of the output coils 29, 30 were substantially greater than the corresponding input power levels driving both of the input coils 26, 28. Therefore, it is apparent that the electromagnetic generator 10 can be built in a self-actuating form, as discussed above in reference to Figure 1. In the example of Figure 1, except for a brief application of power from the external power source 38, to start the process of power generation, the power required to drive the input coils 26, 28 is derived entirely from power developed within the right output coil 29. If the power generated in a single output coil 29, 30 is more than sufficient to drive the input coils 26, 28, an additional load 126 may be added to be driven with power generated in the output coil 29 used to generate power to drive the input coils 26, 28. On the other hand, each of the output coils 29, 30 may be used to drive a portion of the input coil power requirements, for example with one of the output coils 26, 28 providing the voltage V for the FET 60 (shown in Figure 2), while the other output coil provides this voltage for the FET 62.

Regarding thermodynamic considerations, it is noted that, when the electromagnetic generator 10 is operating, it is an open system not in thermodynamic equilibrium. The system receives static energy from the magnetic flux of the permanent magnet. Because the electromagnetic generator 10 is self-switched without an additional energy input, the thermodynamic operation of the system is an open dissipative system, receiving, collecting, and dissipating energy from its environment; in this case, from the magnetic flux stored within the permanent magnet. Continued operation of the electromagnetic generator 10 causes demagnetization of the permanent magnet. The use of a magnetic material including rare earth elements, such as a samarium cobalt material or a material including iron, neodymium, and boron is preferable within the present invention, since such a magnetic material has a relatively long life in this application.

Thus, an electromagnetic generator operating in accordance with the present invention should be considered not as a perpetual motion machine, but rather as a system in which flux radiated from a permanent magnet is converted into electricity, which is used both to power the apparatus and to power an external load. This is analogous to a system including a nuclear reactor, in which a number of fuel rods radiate energy which is used to keep the chain reaction going and to heat water for the generation of electricity to drive external loads.

Figure 9 is a cross-sectional elevation of an electromagnetic generator 130 built in accordance with a second version of the first embodiment of the present invention. This electromagnetic generator 130 is generally similar in construction and operation to the electromagnetic generator

10 built in accordance with the first version of this embodiment, except that the magnetic core 132 of the electromagnetic generator 10 is built in two halves joined along lines 134, allowing each of the output coils 135 to be wound on a plastic bobbin 136 before the bobbin 136 is placed over the legs 137 of the core 132. Figure 9 also shows an alternate placement of an input coil 138. In the example of Figure 1, both input coils 26, 28 were placed on the upper portion of the magnetic core 16, with these coils 26, 28 being configured to establish magnetic fields having north magnetic poles at the inner ends 31, 32 of the coils 26, 28, with these north magnetic poles thus being closest to the end 14 of the permanent magnet 12 having its north magnetic pole. In the example of Figure 9, a first input coil 26 is as described above in reference to Figure 1, but the second input coil 138 is placed adjacent the south pole 140 of the permanent magnet 12. This input coil 138 is configured to establish a south magnetic pole at its inner end 142, so that, when input coil 138 is turned on, flux from the permanent magnet 12 is directed away from the left magnetic path 20 into the right magnetic path 18.

Figure 10 and Figure 11 show an electromagnetic generator 150 built in accordance with a first version of a second embodiment of the present invention, with Figure 10 being a top view thereof, and with Figure 11 being a front elevation thereof. This electromagnetic generator 150 includes an output coil 152, 153 at each corner, and a permanent magnet 154 extending along each side between output coils. The magnetic core 156 includes an upper plate 158, a lower plate 160, and a square post 162 extending within each output coil 152, 153. Both the upper plate 158 and the lower plate 160 include central apertures 164.

Each of the permanent magnets 154 is oriented with a like pole, such as a north pole, against the upper plate 158. Eight input coils 166, 168 are placed in positions around the upper plate 158 between an output coil 152, 153 and a permanent magnet 154. Each input coil 166, 168 is arranged to form a magnetic pole at its end nearest to the adjacent permanent magnet 154 of a like polarity to the magnetic poles of the magnets 154 adjacent the upper plate 158. Thus, the input coils 166 are switched on to divert magnetic flux of the permanent magnets 154 from the adjacent output coils 152, with this flux being diverted into magnetic paths through the output coils 153. Then, the input coils 168 are switched on to divert magnetic flux of the permanent magnets 154 from the adjacent output coils 153, with this flux being diverted into magnetic paths through the output coils 152. Thus, the input coils form a first group of input coils 166 and a second group of input coils 168, with these first and second groups of input coils being alternately energized in the manner described above in reference to Figure 1 for the single input coils 26, 28. The output coils produce current in a first train of pulses occurring simultaneously within coils 152 and in a second train of pulses occurring simultaneously within coils 153.

Thus, driving current through input coils 166 causes an increase in flux from the permanent magnets 154 within the posts 162 extending through output coils 153 and a decrease in flux from the permanent magnets 154 within the posts 162 extending through output coils 152. On the other hand, driving current through input coils 168 causes a decrease in flux from the permanent magnets 154 within the posts 162 extending through output coils 153 and an increase in flux from the permanent magnets 154 within the posts 162 extending through output coils 152.

While the example of Figure 10 and Figure 11 shows all of the input coils 166,168 deployed along the upper plate 158, it is understood that certain of these input coils 166, 168 could alternately be deployed around the lower plate 160, in the manner generally shown in Figure 9, with one input coil 166, 168 being within each magnetic circuit between a permanent magnet 154 and an adjacent post 162 extending within an output coil 152, 153, and with each input coil 166, 168 being arranged to produce a magnetic field having a magnetic pole like the closest pole of the adjacent permanent magnet 154.

Figure 12 is a top view of a second version 170 of the second embodiment of the present invention, which is similar to the first version thereof, which has been discussed in reference to Figure 10 and Figure 11, except that an upper plate 172 and a similar lower plate (not shown) are annular in shape, while the permanent magnets 174 and posts 176 extending through the output coils 178 are cylindrical. The input coils 180 are oriented and switched as described above in reference to Figure 9 and Figure 10.

While the example of Figure 12 shows four permanent magnets, four output coils and eight input coils it is understood that the principles described above can be applied to electromagnetic generators having different numbers of elements. For example, such a device can be built to have two permanent magnets, two output coils, and four input coils, or to have six permanent magnets, six output coils, and twelve input coils.

In accordance with the present invention, material used for magnetic cores is preferably a nanocrystalline alloy, and alternately an amorphous alloy. The material is preferably in a laminated form. For example, the core material is a cobalt-niobium-boron alloy or an iron based magnetic alloy.

Also in accordance with the present invention, the permanent magnet material preferably includes a rare earth element. For example, the permanent magnet material is a samarium cobalt material or a combination of iron, neodymium, and boron.

While the invention has been described in its preferred versions and embodiments with some degree of particularity, it is understood that this description has been given only by way of example and that numerous changes in the details of construction, fabrication, and use, including the combination and arrangement of parts, may be made without departing from the spirit and scope of the invention.

Claims [Not included here]

In Disdain of Garbage Physics (PDF)

by

Shawn Bishop

June 2002

Debunks the MEG ...

Harry E. PERRIGO

Etheric Wave Accumulator

Perrigo's invention eventually was exposed as an apparent fraud, at least in part, but there is still some valid question whether it might have actually worked as claimed. The storage batteries that were found hidden in the demonstration car might have served a legitimate purpose (i.e., a buffer system, as in many other devices), but apparently didn't. It is certain, however, that Perrigo had something unique; his device lit bulbs with a clearer light than normal electricity (Like E.V. Gray & Moray), and the power could be transmitted over fine wires without meltdown. While the automobile demonstration was dubious, he also demonstrated a handheld unit that obviously worked as claimed. Perrigo also demonstrated the device before a federal judge and patent commissioners in the House of Representatives in 1917. Would he have dared to fake such a presentation? Only an attempt to replicate the device based on his patent application will resolve the question. Here are all the newpaper factoids I have been able to accumulate (Thanks especially to the Kansas City Public Library "Vertical Files").

Excerpt from unidentified reference (probably by Dan Davis):

In 1926, Harry E. Perrigo claimed to have discovered a method to tap the energy from atmospherics. He even had a car which he converted to run on electricity that was generated in his "etheric wave accumulator". He applied for a patent December 31, 1925, with serial number 78,715 being assigned. Perrigo's patent application is considered a classic in patent law and is listed under the classification of "Perpetual Motion Machines & Other Impossible Inventions".

Despite the patent Office's attitude toward Perrigo's invention, there were a number of reputable people who claimed to have witnessed his device in action producing useable electric power.

The existence of electromagnetic radiation, the modern term, or electric waves in the ether as it used to be called was known by Hertz, a research scientist who discovered the photoelectric effect in 1887. Atmospherics, an electrical disturbance in the atmosphere, were known to produce noises in the early radio telegraph stations, some being strong enough to drown out the received signal. Perrigo deduced that here was a possible source of electrical power. All that was needed was a method of transforming the existing radiation into useable energy. He claimed to have developed a mechanism to intercept and collect from the "general ether field electric wave energy", and to transform it into useable electromotive force.

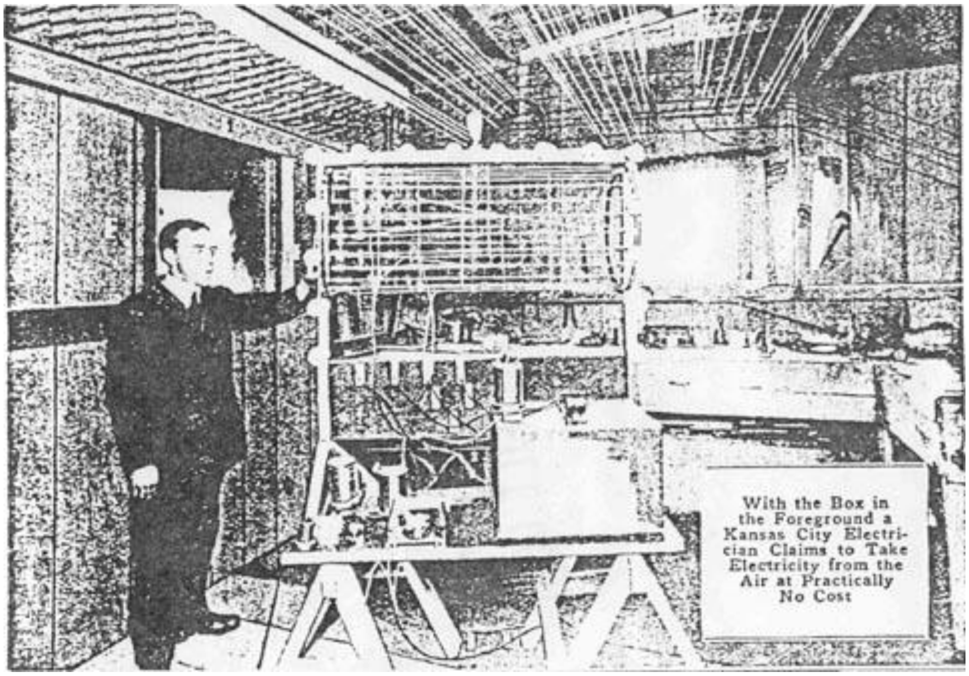
The basic method he used was an antenna arrangement which collected and resisted the incoming energy and raised it to a high enough current level where it could be run through a special electrical transformer to further intensify the available power.

Perrigo's antenna was derived from his experiments with various wire shapes, sizes and arrangements. One of his more successful attempts was to partially pound 100 roofing nails into a board 10 x 10 array and wrap very fine wire around each nail, making it a small electromagnet. Then by trial and error approach he connected the ends of the electromagnets to other nails in such a way that there was a maximum voltage between the wire and the nail. His patent application mirrored this electrical connection scheme in a more refined electromechanical approach.

Two accumulator plates were made with 100 round protruding knobs in a 10 x 10 square array. The accumulator plates were then sandwiched together with an insulator material between them. The insulator had 100 holes matching the protrusions on the plates. Placed in each hole was a special coil wrapped around a bundle of wires. Once the accumulator plates were sandwiched, a measurable electrical voltage existed between points AA and BB on plates 1 and 2, respectively. A very complicated transformer was attached to these two points. The plates were set on top of the transformer and Perrigo claimed this arrangement enhanced the energy accumulation process.

I have no idea of what materials the plate or protrusions were made. The patent drawing would lead one to believe they are the same material. It could be a metal [lead has been mentioned, or galena] or a non-conductor such as wood or a combination. The protrusions were connected by the same wiring scheme previously mentioned for the roofing nail model. The connections were different for the two plates.

Electricity As Free As Air Is Inventor's Aim



With the Box in the Foreground a Kansas City Electrician Claims to Take Electricity from the Air at Practically No Cost

---

Kansas City Star (February 29, 1916) ~

[No Title Available]

It would be a dull night in the 2500 block on Park Avenue when the emergency ambulance didn't dash up with a pulmotor and revive Harry E. Perrigo, who lives at 2511.

Mr. Perrigo is an electrical engineer 8 hours of the day and an inventor the other 16. he has invented a device for collecting electrical energy from the atmosphere. Without dynamo, transformer, generator or aught else, he is enticing a constant current of 1500 volts down an aerial resembling a wireless mast, it is claimed. Anyway, he is lighting an 8-room house without visible means of support on the part of the Kansas City Electric Light Company.

Last Friday night while tinkering with the apparatus, Perrigo was made unconscious by an electrical shock. He was revived by his family and returned to his work. An hour later he again got in the way of the maverick voltage and this time it required the emergency ambulance and a pulmotor to revive him.

Last night about 11 o'clock the "2511 Park Avenue" call again reached the emergency hospital.

"Bring the pulmotor, boys", shouted Dr James I. Tyree. Perrigo was revived with a few minutes work. He had been tinkering again.

Kansas City Post (March 4, 1916) ~

"Electricity From The Air"

Benjamin Franklin stood in the rain nearly 200 years ago with a string of a flying kite in his hand. Franklin discovered that electricity was in the air.

Harry E. Perrigo, by night and by day, stands in the little workshop behind his home at 2511 Park Avenue and imprisons electricity. Franklin did not know what to do with his wonderful discovery. He did not realize how wonderful it was. But Perrigo lives in an age when electricity has been made to work and he knows what to do with the energy he takes from the very atmosphere itself.

Perrigo has caught the wild voltage in the air: has caught and tamed it. He keeps it in a little box for everybody to use in lighting houses, or running automobiles or machines or street cars, heating homes, cooking or primping with electric curling irons.

Invention Ready For General Use ~

Just what is in that little box is a mystery. It is kept sealed, air tight, but no wires communicate with it from without.

Perrigo has perfected the invention enough, he says, that it is ready for general use.

"All that would be necessary for one to obtain electricity for domestic purposes", he explained, "is to install this little box where the customary electric meter is placed at home. Connect the wires in the house with the box on either side and there you will have it.

"You can get any amount of electrical voltage you desire by using the required kind of transformer. You could get enough voltage from the air through that box to light any reasonable number of electrical lamps -- say a hundred or more -- and the current costs nothing. It is as free as the air from which it comes.

Success Crowns His Efforts ~

It would take an expert electrician to tell just how Perrigo tames the electric currents from the air, and then it probably would not be told in language which could be understood by the ordinary individual.

Perrigo, more than a year ago, concluded through experiments that there is free electricity in the air. For months he spent his waking hours in work and study until one night success crowned his efforts.

He caught the energizing element. But he caught it with his bare hands, and paid the penalty by being rendered unconscious from the shock. Since then Perrigo has devoted all his time to improving his discovery and to make it an item in the industrial and home lives of the universe.

His experiments have been attended by constant danger. Frequently he receives the full force of the heavy voltage he is attempting to control. He has made his more delicate tests recently only in the presence of physicians. Not infrequently has the pulmotor been brought into use in order to save his life. But Perrigo always goes back to his work.

Has Implicit Faith In Device ~

Some day, Perrigo says, that little box of his is going to revolutionize the production of energy for transportation as well as for domestic use. When he tells of his faith in the device it is not hard to believe that his success is probable.

Perrigo has bright red hair and his every movement is characterized by some seemingly hidden force, as though the electricity with which he works and plays has become a part of him. All his working life Perrigo has been an electrician and has been accustomed to handling high voltages.

And Mrs. Perrigo, enthusiastic and balancing, is largely responsible for her husband’s success. It is from her that the hard, everyday practical suggestions come while her husband sits among his coils and transformers and testing boards, dreaming out some new phase of the work. Mrs. Perrigo suffers too.

Some days she fears, the pulmotors may not prevail. Some day the monster with which her husband wrestles may overcome him. That’s why every time Perrigo goes into his workshop, he hears the warning:

"Harry, be careful. Use switches instead of your hands."

But Perrigo, absorbed in his work, often forgets, and then -- a blue flame in his hands, a splutter and a pop and the inventor gets a shock that sometimes makes him unconscious.

But the little box is there. He has done what he determined to do. He has caught electricity from the air. Others, of course, have generated it, but Perrigo takes only that which nature has made.

Congressional Record (House), December 15, 1917, p. 357-372 (Excerpts, pp. 358, 363) ~

[Note ~ Perrigo demonstrated his device in Congress on December 14, 1917. He was mentioned during a discussion ofHouse Joint Resolution 174 concerning the so-called "Garabed" invention of Garabed T. K. Giragossian, which was claimed to be a free energy generator. Giragossian wanted Congress to grant him exclusive rights beyond those granted by Patent Law. His invention later was proved to be impossible, based on erroneous interpretation of gyroscope physics. Perrigo demonstrated his device to show that there are other ways to attain "free energy".]

Mr Garrett: The purpose of the resolution, which by direction of the Committee on Rules I have called up, is to provide for the consideration, under the general rules of practice of the House, of

House joint resolution 174, Calendar No. 77, entitled "Joint Resolution for the purpose of promoting efficiency, for the utilization of the resources and industries of the United States, for lessening the expenses of the war, and restoring the loss caused by the war by providing for the employment of a discovery or invention called the 'Garabed', claiming to make possible the utilization of free energy"...

Mr Borland: A hearing was had yesterday morning on an invention by a man named Perigo [sic], who claims to have invented a machine to collect electricity by free energy; that is, to collect it from the energy of the air. In other words, his invention is based on the idea, as I gather it, that electricity can be collected from the air, where it must be collected, by some other means than by the force of a dynamo.

Now, if this is true --- and I am not enough of a scientist to know --- there may be many devices that are patentable for doing that particular thing, or applying that particular principle. If Mr Giragossian has a device for utilizing free energy, his device or machine or appliance is patentable, but the principle of free energy evidently is not patentable under the existing law. Anybody else who produces a better machine for utilizing free energy is just as well entitled to use it for the benefit of mankind as the man who first obtains the patent on it. In other words, we cannot foreclose that principle.

Now, we have got a machine here in the Capitol --- I undrstand from Judge Romjue a few minutes ago that the machine which Mr Perigo had demonstrated before the Patent Committee had been brought over here. It was shown to the Patent Committee. It is in a small box. I have seen it. I would not know anything about it. It runs a dynamo or motor, and it lights certain lights. In other words, there is some power in that box. What that power consists of I have no means of knowing. The inventor says it contains free energy. In other words, this device has been brought to a state of completion. It is in actual working order.

Now, it does seem to me that this bill ought not to be passed at all unless it provides that this committee of scientists shall not only have the power but it shall be charged with the duty of ascertaining whether or not this device of Mr Giragossian utilizes the same principle of free energy..

Kansas City Star (January 15, 1922) ~

"Mr. Perrigo's Own Conception of What His Invention Means to the Future"

The steam engine will be abolished from industry. Trains and trolley cars will be operated by free energy.

Aviators will be able to circle the earth without coming to the ground for fuel.

The maximum speed of ocean-going ships will be increased from about 23 knots an hour to more than 100, by the conservation of the space and tonnage now used by mammoth boilers and coal bunkers. Manila will be nearer to Kansas City than San Francisco is today. The trip from London to Boston will be made in 30 hours. Asiatic fruits will reach New York fresher than California fruits arrive now.

Aluminum, produced cheaply and abundantly by free electricity, will replace wood and steel in the manufacture of ships, buildings, cars and furniture. The world will be benefited by the preservation of forests, and great fire disasters will end.

The expense of motive power in transportation, travel, and communication will be eliminated.

The present system of agriculture will be changed materially. Every farmer will have abundant power. Underground streams can be reached and ever-pouring water will be available in all regions. Millions of arid and deserted acres will be transformed into productive fields.

Nitrogen for fertilizer will be extracted electrically from the air.

Hours of labor will be reduced while industry and production increases.

Kansas City Star (January 15, 1922) ~

[No Title Available]

Imagine: without gasoline, or other fuel, without storage batteries or generator, a motor car holding its place in the flow of traffic on a busy Kansas City street.

Imagine: over Kansas City, 1,000, 5,000, 12,000 feet from the ground, an airplane soaring. Without a drop of gasoline or petrol on board, without storage batteries, without generator, without even an engine, it loops and dives and flies away.

Imagine: In your little cottage or apartment, your big house, electric lights burning steadily. Imagine your wife in the kitchen, getting dinner. Imagine you see her turn a snap switch beside the oven door and put her potatoes in to bake. Yet you know that the power wires going into the cottage apartment or house are cut off at the meter and are "dead".

Imagine: there will be no electricity and gas bill at the end of the month.

Imagine the motor car, the airplane, the house lights and oven, powered and lighted and heated by electricity --- electricity from a little wooden case 14 inches square and weighing less than 90 pounds.

Is it past all imagining? Are you a skeptic and do you point to the way the entire country has been fluttered in the past by announcements of fuel made from ashes and gasoline from water, and nothing has come from it? You may be right to be a skeptic. But the years Harry E. Perrigo, 3000 Michigan Avenue, has spent inventing and perfecting the little machine in the wooden case entitle him to the attention of the public, especially his neighbors in Kansas City.

The dream outlined above will be true within a year, Mr Perrigo declares. It will be realized by his invention, he says, a device he calls the Perrigo.

Mr Perrigo is an electrical engineer, educated in the Massachusets Institute of Technology. More than 10 years ago, while working in a power plant in Pee Dee, SC, he touched a wire, "dead" so far as any connection with any source of power was concerned, and found it charged with electricity. His idea came then.

If a wire, suspended in air, gathered atmospheric electricity, why couldn't that electricity be accumulated, condensed and converted into power?

Telling his own story, Mr Perrigo said he kept the idea in mind constantly, thinking out devices, drawing sketches. He explained it to Mrs Perrigo, and talked over plans with her. She was enthusiastic, as any good wife would be, without any definite idea of what it was all about.

The Building of the First Machine ~

Then one night, early in 1915, came the inspiration to act. Mr Perrigo lived at 2511 Park Avenue at the time. Stores and shops were closed, but with two or three strands of copper wire from the basement, with two embroidery hoops from Mrs Perrigo's work basket, with a leaf from the dining room table, with the bread box from the pantry, with a sheet, torn into strips, with shingle nails and paraffin, Mr Perrigo, with Mrs Perrigo's aid, made his first "free energy" device. And it worked.

Before noon the next day, he said, electric lights were burning and a small electric motor was running from the power developed in the crude tangle of wires on the Perrigo dining room table.

The neighbors came in to see. Among them was Dr Bert McDowell, a dentist with offices at 4301 Main St.

"I couldn't believe my eyes", Dr McDowell said the other day. "I had to be convinced, because the thing was there in plain sight and I knew Harry wasn't getting his power from outside, because his house was not even wired for electricity. He used gas for lights."

"Yes", Mr Perrigo put in, "I was so fascinated with the thing I had made that I kept that little motor running constantly for two weeks. It buzzed and hummed and rattled frightfully, and gave my wife a headache, but she didn't complain, and I kept it going."

Handicaps Were Many ~

Mr Perrigo's story from that point on is one of five years of patient, unending work to perfect the Perrigo. It is one of long days and nights of toil, of sickness, failures, lack of money, the hooting of unbelievers, organized opposition, the hearty cooperation of a real helpmate.

The Perrigo basement is piled high with coils and plates of many sizes and shapes, steps in the evolution of the present compact design, which, Mr Perrigo says, with the patents virtually proved, is ready for manufacture on a commercial basis.

From the pile, Mr Perrigo dug out the other day a board, 12 inches square, an inch thick, both faces covered with shingle nails, set a half inch apart, each extending an inch out of the board.

Each nail was wound tightly with silky fine copper wire, smooth spirals one atop another. The wires led from one nail to another, some from top to base, some from top to top, some from base to base, each wire soldered carefully in place.

"Mrs Perrigo did all that for me", Mr Perrigo said. "She worked until long after midnight many nights. The job took weeks to complete. Then the thing wouldn't work. It's just one of a lot of experiments we put time and money into, only to find it was not the right thing."

From his first crude machine, Mr Perrigo, in his search for perfection, evolved may different types. At first he worked on the idea of an aerial to gather energy. A workshop he fitted up was strung with a network of wires. The wall was driven full of nails wound with copper wire.

"The machines I made out there did the work", Mr Perrigo said, "but they were bulky and bunglesome and got out of order easily.

"Other things than getting rid of bulk bothered me, too. My early machines were affected by passing air currents. Power would increase when I fanned the machine or when a person walked past it, and decrease when the atmosphere was calm.

"The machine I have now gives a steady flow of current, whether in the basement, 14,000 feet in the air, in a motor car or on a fast moving train. The copper pegs in the wooden block do that."

The Completed Machine ~

The Perrigo consists of only four parts: two lead plates, a wooden block and a coil of copper wire. The coil that Mr Perrigo says will deliver 500 horsepower is 10 inches across, 4 inches high, of solid copper. Fine copper wire is wound smoothly about neat rows of copper stays, hardly larger than a toothpick, but longer, as long as the coil is high. The wire is connected in many devious ways. In those connections is the secret of the mysterious power.

The lead plates for this size Perrigo are a foot square. On each plate are 100 spring coils of copper wire, spaced in rows, an inch apart. The plates appear identical, but are different in the way the connections of hair-like copper wire run from one coil to another.

The wooden block is a foot square, also, and an inch thick. One hundred copper plugs run through the block, spaced just as the coils on the lead plates are spaced. Each plug is a bundle of copper stays, making a contact.

That is all there is to the Perrigo, so far as anyone can see. Complete, the 500 horsepower size weighs 87 and one-half pounds. There are no moving parts.

A Perrigo to operate an ordinary size motor car need be no larger than a 1-pound coffee can", Mr Perrigo said. "A size to provide all the current needed to heat and light a 5-room house will go into the can. The different sizes can be made to furnish any desired voltage, and either direct or alternating current, by a slight change in the wiring."

The Inventor Explains It ~

Trying to avoid technical terms, difficult business for an engineer, Mr Perrigo explained his invention this way:

"The device is a generator as truly as the power-driven rotary generator in any power plant. Those generators don't actually 'make' electricity. They condense it from the air. So does the Perrigo. But it does it through the system of wiring, rather than revolutions through a magnetic field. I get my starting point from the air by breaking up the ether waves. The coils on the lead plates do that. I know why they do. It's the way they are connected, one from the other. That's my secret.

"They do break up the ether waves, gathering electricity and conducting it into the big coil underneath. That's the generator. Its size and the way it is wired determines the voltage, the horsepower. Outgoing wires from this coil take the 'juice' where you want it and it is there when you want it."

Mr Perrigo has great plans for his electric 'chore boy' and great faith in it.

"It will replace every other source of power, light and heat", he predicts. "It means the doom of the steam engine, the end to coal mining, to the cutting of timber for fuel. It means petroleum will be used only for lubrication. It means smokeless, sootless cities. It means chimneys will disappear from housetops. It means cheap power for the farmer, the reclamation of much country that cannot be irrigated now because power is not available."

What Other Persons Think ~

Mr Perrigo is able to impart his faith to others, too. The enthusiasm of persons who have seen the device work is second only to that of Mr Perrigo himself.

S.W. Fries, an electrical engineer, and district sales manager here for the Economy Fuse and Manufacturing Company, saw the Perrigo first about three months ago.

"When I heard about the machine through Dr McDowell, I told him it couldn't be done", Mr Fries said the other day. "I've been converted. I don't know how it works, but it does. Its possibilities are too big to grasp. Its use will mean a new age in industry. I believe Mr Perrigo will be the most widely known inventor in the world as soon as his device comes into general use, and he will become one of the world's most wealthy men, just from returns which already seem assured."

"Mr Perrigo gets enough electricity from somewhere to knock him unconscious", Dr O.W. Butler (3700 Benton Blvd) pointed out. "I've been called to his house many times in the last four years to revive him, and once I carried him out of his basement. He has worked at his experiments as long as four days and nights without sleep --- worked until his health is broken and his constitution is a bundle of jagged nerves."

"How are you going to manufacture your machine and get it on the market?" Mr Perrigo was asked when he asserted there was no stock for sale and he was seeking no financial aid.

"Responsible backers are furnishing all the money I need for experiments, models for the patent office and other work I'm doing now", he answered.

"As soon as one final amendment to my patent application is approved I'll be ready to permit motor car manufacturers to make the Perrigo in their own plants, charging them a small royalty on each machine. They will be eager for it when they see what it is. This will provide funds enough in a short time for my associates and myself to being to manufacture the machines for home use.

"We don't expect to sell the Perrigo. We will lease them on the same plan the telephone companies use for their machines, charging a monthly rent, probably about $3 for a 5-room cottage size. That's cheap enough, isn't it, for all heat and light and power?

"I've always said I never would sell out to any big corporation. My invention is for the benefit of the poor amn. Even on that basis I'll get more money out of it than I can ever use."

The Householder's Point of View ~

Mr Perrigo explained that it will not be necessary for the householder who desires the Perrigo installed to buy an expensive electric furnace, electric range or any special equipment.

"A gas range can be wired through the pipes which now carry gas", he said. "It will be necessary only to replace the gas burners with electric heating plates and install snap switches where the gas valves are now. A furnace can be fitted in the same way, by removing the grate. No change will be necessary with the lights. The new machine will be installed where the meter is now. That's all."

"When one man has a machine, won't it be possible for his neighbors to come in, see how it works, and manufacture their own?" Mr Perrigo was asked.

"No", he answered, "Each one will be sealed, just as the electric meter is sealed. To break the seal will put it out of order and the subscriber will have to call for a 'trouble' man. Anyway, if a man would take one apart he couldn't put it back together again without my drawings and blueprints. That's my secret and I'll keep it."

A Demonstration ~

When a visitor expressed a desire to see a machine actually produce light or power or heat, Mr Perrigo acquiesced. He went to the basement and returned almost immediately, bearing a boxlike affair, mounted on a little platform. A small electric motor, light sockets and switches were on the platform. The top of the box was glass. Through it Mr Perrigo pointed out parts of the machine inside.

Mr Perrigo fastened the loose ends of two wires that extended from the box to the connection posts of the motor and pushed a switch button. The motor started at once. The inventor said he had not changed the machine or even opened the box, which was closed with screws since he made it five years ago.

Kansas City Star (March 27, 1922) ~

"Can't Use His Invention"

Patent Laws Prevent Demonstration, H.E. Perrigo Tells Inquirer ~

Miami, OK --- To *The Star*: "In your paper of January 15 there appeared a wonderful story relating to the invention of Harry E. Perrigo, an electrical engineer of Kansas City, of a device to generate electrical energy.

"One got the impression from reading the story that Mr Perrigo's device was a demonstrated success, that it had been patented, and that he was practically ready to permit its manufacture as a source of power.

"It was a whale of a story and interested me, for it seemed if it were true that his device was destined to have as far-reaching influence on the human race in the future as the grain binder and the gas engine had had in the past.

"I wrote to various publications devoted to mechanics and electricity, seeking further information. None knew anything about it. One said no such device had been patented, another that a vast amount of research and experimentation had been done in an effort to develop such a device and that the only result had been failure.

"I would like to know if Mr Perrigo's device has been patented and if he is prepared at the present time to demonstrate it in a convincing way."

The story of Mr Perrigo's invention was printed in the Star as the record of an ambitious and interesting enterprise. The apparent success of the device was vouched for by persons who had seen the machine in operation and were convinced it produced the results Mr Perrigo claimed for it.

Questioned recently as to new developments, Mr Perrigo said there could be no new mechanical developments.

"The machine has been developed to a state as near perfect as I can make it, for two years", he said. "I am waiting for the patent office to take final action. My applications have been approved and investigation has shown no conflicting patents on record. The rest is simply a matter of routine work in the patent office. As soon as the final patents are granted I'll be ready to manufacture the Perrigo.

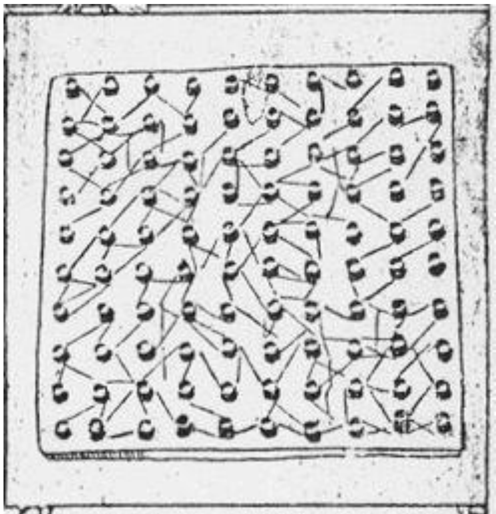
"I can't give a demonstration without going to considerable trouble to set the machine up. Of can't keep it set up, nor even use it in my home, because technically that would amount to 'commercial use' and would interfere with the granting of patent rights."

---

(1) Harry E. Perrigo, the inventor of a "free energy" device which he believes will revolutionize all industry ~

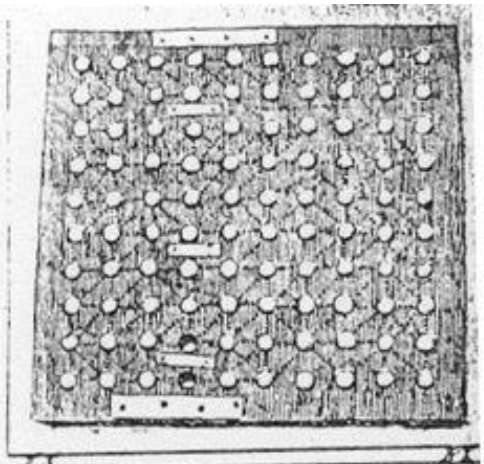
HARRY E PERRIGO, THE INVENTOR OF A "FREE ENERGY" DEVICE WHICH HE BELIEVES WILL REVOLUTIONIZE ALL INDUSTRY ~ ~ ~ ~

(2) Here, Perrigo says, is his secret: the 100 little spring coils of copper wire break up the aether waves and conduct the electricity they gather into the big generating coil. There are two of these plates, identical in appearance but different in wiring.



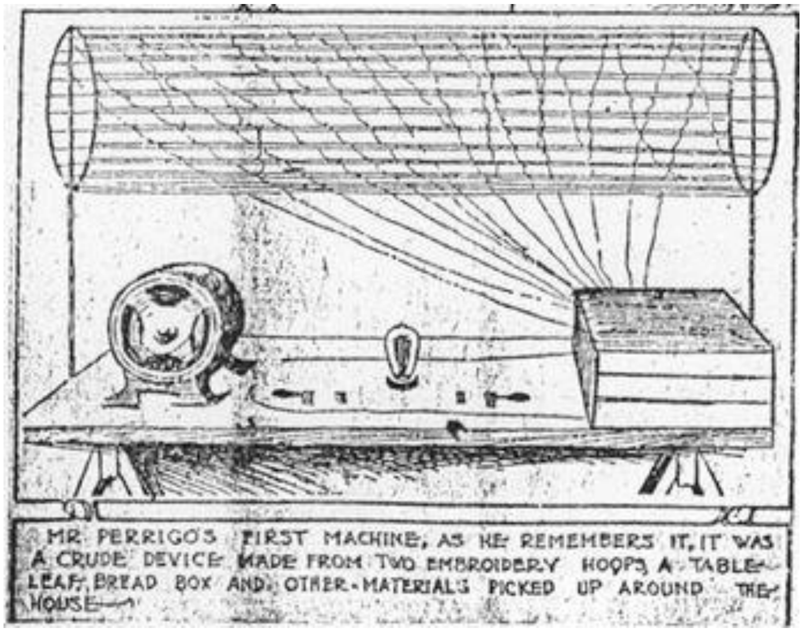
HERE, MR. PERRIGO SAYS, IS HIS SECRET. THE ONE HUNDRED LITTLE SPRING COILS OF COPPER WIRE BREAK UP THE ETHER WAVES AND CONDUCT THE ELECTRICITY THEY GATHER INTO THE BIG GENERATING COIL. THERE ARE TWO OF THESE PLATES, IDENTICAL IN APPEARANCE, BUT DIFFERENT IN WIRING

(3) The 100 little bundles of copper stays form the plugs driven through the wooden block are soldered over the ends, making them appear smooth.

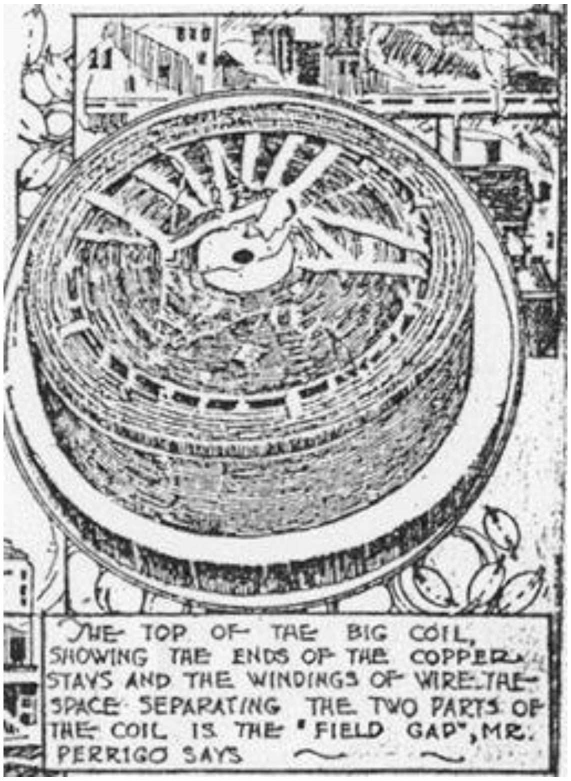


THE ONE HUNDRED LITTLE BUNDLES OF COPPER STAYS, WHICH FORM THE PLUGS DRIVEN THROUGH THE WOODEN BLOCK ARE SOLDERED OVER THE ENDS, MAKING THEM APPEAR SMOOTH

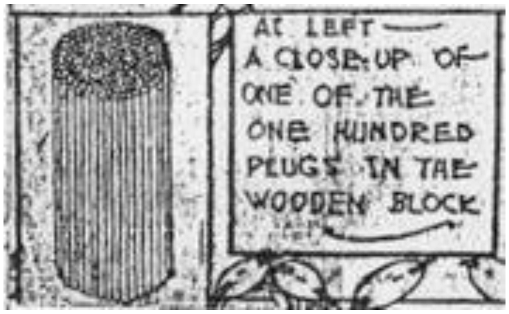
(4) Mr. Perrigo's first machine, as he remembers it, was a crude device made from two embroidery hoops, a table leaf, bread box and other materials picked up around the house.


MR. PERRIGO'S FIRST MACHINE, AS HE REMEMBERS IT. IT WAS A CRUDE DEVICE MADE FROM TWO EMBROIDERY HOOPS, A TABLE-LEAF, BREAD BOX AND OTHER MATERIALS PICKED UP AROUND THE HOUSE

(5) The top of the big coil, showing the ends of the copper stays and the windings of wire. The space separating the two parts of the coil are the "field gap", Mr. Perrigo says.

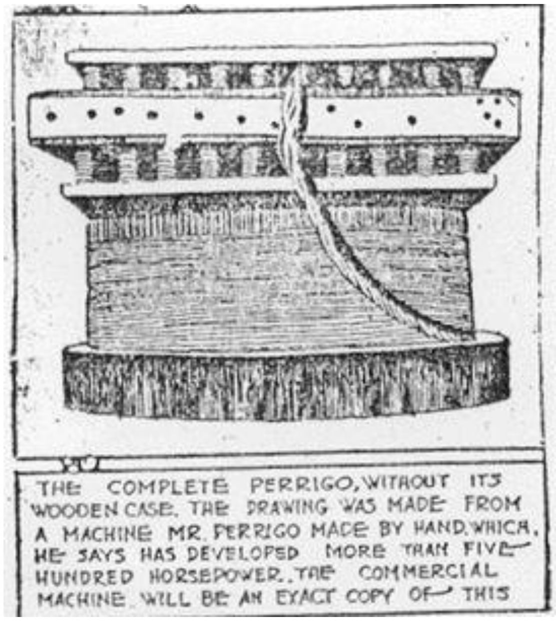

THE TOP OF THE BIG COIL, SHOWING THE ENDS OF THE COPPER STAYS AND THE WINDINGS OF WIRE. THE SPACE SEPARATING THE TWO PARTS OF THE COIL IS THE "FIELD GAP", MR. PERRIGO SAYS

(6) At left, a closeup of one of the 100 plugs in the wooden block.



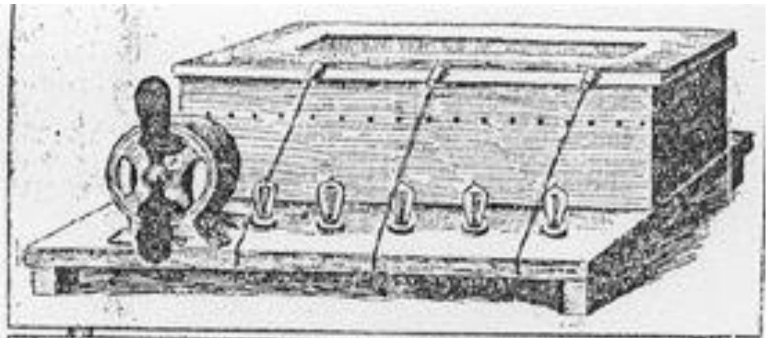
AT LEFT — A CLOSE-UP OF ONE OF THE ONE HUNDRED PLUGS IN THE WOODEN BLOCK

(7) The complete Perrigo, without its wooden case. The drawing was made from a machine Mr. Perrigo made by hand which, he says, has developed more than 500 horsepower. The commercial machine will be an exact copy of this.



THE COMPLETE PERRIGO, WITHOUT ITS WOODEN CASE. THE DRAWING WAS MADE FROM A MACHINE MR. PERRIGO MADE BY HAND WHICH, HE SAYS HAS DEVELOPED MORE THAN FIVE HUNDRED HORSEPOWER. THE COMMERCIAL MACHINE WILL BE AN EXACT COPY OF THIS

(8) This is the machine the writer saw in operation. It was built by Mr. Perrigo 5 years ago for demonstration in Washington, when the inventor successfully opposed a war measure which would have prevented for a period of 17 years the granting of his patents on any "free energy" device. The operation of this machine, on the speaker's table in the lower House, is recorded in the ***Congressional Record,* December 15, 1917, pages 369-383.** [Actually, pp. 357-372]



THIS IS THE MACHINE THE WRITER SAW IN OPERATION. IT WAS BUILT BY H.S. PERRIGO FIVE YEARS AGO, FOR DEMONSTRATION IN WASHINGTON, WHEN THE INVENTOR SUCCESSFULLY OPPOSED A WAR MEASURE WHICH WOULD HAVE PREVENTED FOR A PERIOD OF SEVENTEEN YEARS, THE GRANTING OF HIS PATENTS ON ANY "FREE ENERGY" DEVICE. THE OPERATION OF THIS MACHINE ON THE SPEAKERS' TABLE IN THE LOWER HOUSE IS RECORDED IN THE CONGRESSIONAL RECORD DECEMBER 15TH, 1917, PAGES 369—83

Kansas City Journal (August 7, 1927), page 1 ~

"Power Drawn From Air Propels Auto Over K.C. Streets"

Inventor Claims Tiny Motor Will Drive Plane Around World, Doing Away With Transportation of Fuel

A motor car was driven 40 miles an hour in Kansas City yesterday on power drawn from the air.

A device making this feat possible was demontrated after years of rebuffs and failures by its inventors, Harry Perrigo, 1116 Bennington Avenue, in the presence of Col, Paul Henderson, Chicago, vice president of the National Air Transport Inc., air mail contractors.

"It is the greatest invention since the stone age", was Col. Henderson's comment.

Lou E. Holland, president of the Chamber of Commerce, who saw the demonstration with Col. Henderson, was enthusiastic over the invention and said he believed it would have a great effect on public utilities if it can ever be brought into general use.

Coils Gather Power ~

The device consists of a plate 14 inches square which, by a multiple arrangement of connected copper coils, it was explained, attracts electric current from the air.

The electricity thus trapped passes through a generator and to a regular direct current motor, which was connected to the transmission shaft of the car.

Mr Perrigo has been working on the device more than 10 years. Three years ago he suffered a nervous breakdown and has been back at his workshop only two months.

While photographers focused their cameras, Mr Perrigo and his wife entered his roadster in which the device was installed. He turned a switch and the motor hummed.

The inventor sat silent, listening. Then he threw in the clutch gently. The car moved away with only the sound of the cogs, whining softly as they meshed. He threw it into high and sped away.

At the corner of 10th Street and Bennington Avenue, near his home, he stopped the machine while movie cameramen ground their machines. Then he backed it and turned around, stopping in the middle of the street.

Later Mr Perrigo took the car out for a spin. It breezed along at 40 miles an hour.

"100 Just As Easy" ~

"I could make it go 100 miles an hour just as easily", the inventor remarked, "if it were not for the danger of hurting someone."

The total weight of the motor, generator and controls is about 86 pounds, according to the inventor. In the rear of the car are reduction coils, because the device is five times too powerful for the work of pulling the car, Mr Perrigo said.

The proper motor for a Reo car will not weigh more than 30 pounds", he said. "The motor to run a Chevrolet will weigh not more than 10 pounds. An airplane motor would weigh around 50 pounds, and with that motor the air traveler could go around the world without waiting."

Col. Henderson walked around the machine, inspecting it.

"What it would mean to my airplanes", he said, "--- no weight for motors, no space for gas, no motor trouble."

Like other spectators, he had difficulty in believing what he saw.

The work of bringing the invention to its present state of development has been the story of a lone man working with the unknown, usually meeting with discouragement.

Congress Wouldn't Believe ~

Five years ago, the inventor took one of his electric motors to Washington, set the boxlike contrivance on the speaker's stand in Congress and ran a motor and five lights with it. They called it an infernal machine.

Even now, when he is seeking patents for his invention, the patent office refuses to believe the principles he advances are possible.

"The machine has been taken up in an airplane 10,000 feet and it operated the same as if it were on the ground", Mr Perrigo said. "It has been tried out in hot places and cold places."

He pictures it as power for every purpose --- the farm, the factory, the office, doing away with coal, gas, cost of water power and the cumbersome weight of engines.

The models of the machine now are being kept in bank vaults.

Mr Holland is convinced, after two weeks investigation, that the invention is genuine.

Kansas City Journal (August 8, 1927), p. 3 ~

"Perrigo Dreams Of Aiding Humanity With Ether Wave Machine"

Inventor Declares Generator, When Patented, Shall Not Be "Hogged" or "Shelved", But World Will Reap Benefits Of Cheap Power.

Homes lighted and meals cooked for a cost of $5 per month; motor cars operating with a quart of lubricating oil about once every six months and a little grease in the rear axles and yet damaging no existing corporations by the working of these revolutions.

These are the dreams of H.E. Perrigo, 1116 Bennington Avenue, inventor of the Perrigo ether wave generator.

Lou E. Holland, president of the Chamber of Commerce and Col. Paul Henderson, general manager of the National Air Transport, Inc., are convinced his invention is practical.

Mr Holland, Mr Henderson and newspaper men Saturday witnessed a demonstration in which Mr Perrigo drove a motor car on electric power generated from the air.

"It is too early yet to talk to manufacturing the invention", Mr Holland said yesterday. "The patent rights must be perfected in both the United States and foreign countries. Also, it must be made clear that nothing will be done to demoralize present power manufacturing."

Mr Perrigo's invention is the result of more than 12 years labor on the part of the inventor.

"Twelve years ago I conceived the idea that the generation of power from ether waves was possible, while I was employed ion the power plant at Pee Dee, NC, where some wires not connected with anything that was 'live' seemed to be generating power", Mr Perrigo said yesterday.

"After more than a year of experimenting I finally produced light in a bulb about the size of those used in flash lights. Now in my laboratory I light three 300 watt globes from a wire no larger than the thread which holds the button on a man's overcoat.

"Three times in my experiments I was knocked unconscious because I did not know how much power it would generate.

"The invention has been tested under all conditions. It has been strapped to the running board of a locomotive running between Kansas City and Chicago, it has been tested in an airplane at a height of 12,000 feet. It will generate power anywhere that air circulates.

"With the invention every home will have its own power plant and all the electricity needed for any purpose can be provided at a roughly estimated cost of $5 per month.

"The Kansas City Public Service company, for instance, could afford to install these plants because they would eliminate the enormous overhead which is the principal expense of such companies."

Both Mr Perrigo and Mr Holland made it plain that the invention will not be permitted to upset the electrical world. No one will be given exclusive rights of its use, they said.

"Any person or any manufacturer can use the invention who will pay the royalty fees", Mr Perrigo explained. "No one will be permitted to 'hog' the invention and no one can purchase it and shelve it.

"I have no doubt that it will bring me more money than Mrs Perrigo and I will need to supply our simple wants and I want humanity to benefit.

"I want to see rural sections which have remained barren because it cost too much to pump the water to irrigate them, spring into bloom. I want to see the smallest farm house in the most isolated places with its electric lights and stoves; in other words, I want humanity to benefit."

"How about the gasoline industry if motor cars are to be run without fuel?" he was asked.

"The supply of petroleum is limited", he answered. "There are 30 other purposes to which petroleum products can be turned, so the oil producers will not suffer."

"Can you explain your invention so that the non-technically trained can understand it?"

"That would be difficult, especially without divulging information that is now in the patent office; besides, the generation of power always is difficult to explain.

"Electric generators have been used in power plants for a great many years. We all know what you have to do to make a generator and we all know that electricity is its product but we don't know very much about what really is going on inside that generator."

While the patents for his device still are pending, Mr Perrigo is keeping his working models in the vault of a downtown bank to prevent the possibility of their being copied.

Kansas City Star (August 7, 1927) ~

"Electricity Power from Air?"

An invention that will revolutionize radically all power producing and power using machinery of the entire world, if in practical use it equals the miracle of its demonstration, was given a showing here yesterday to newspaper men and Lou E. Holland, president of the Chamber of Commerce.

It is a device to collect electrical energy from the ether and convert it into a powerful current of electricity of a type dissimilar in many ways from the direct or alternating current now known to electricians.

So far as could be determined even by the most skeptical of those witnessing the demonstration yesterday, the device is exactly what Harry E. Perrigo, the inventor, asserts it to be -- a method for collecting natural electricity from the ether, in unlimited quantity and without cost.

More Power Than Needed ~

One feature of the demonstration was the operation of a motorcar by power from a small model of the invention. The engine had been removed from the car and an electric motor substituted.

The device supplied power in such quantity that it had to be reduced and yet propelled the car with speed and ease.

A detailed examination of the car showed the absence of any possible form of power except the inventor’s small device and it is of such an open type that one may see clear through the mass of wires and coils.

Other demonstrations were given with other models of the device, with the machine and electric lights and motors held in the hands of spectators, yet the device produced current to do any electrical task assigned to it.

Col. Paul E. Henderson, general manager of the National Air Transport, Inc., was there with Mr Holland, being his guest for the day. He took an active part in the testing and enthusiastically was declaiming the invention as revolutionary.

Cheap As Similar Motor ~

To operate a motor car would require a model weighing about 20 pounds, Mr Perrigo computes, but he has given no thought the probable cost of building it. However, he estimates the cost at no more than an electric motor of the same size.

A device of the size of a coffee can would light and heat an average home, he declares, cutting off forever all fuel and lighting bills.

And one can go on and dream of an electrified world with free power for all industries and operations, increased yields of foods from dry areas that cold be irrigated with this free energy, the passing of wood and coal and oil as fuels.

At first thought, not one of the persons seeing yesterday's demonstration could give much credence to the inventor's declaration that his invention was a way to obtain unlimited electrical power from the ether without any cost.

There was not a doubter left as to the success of the demonstration, but the witnesses could not in any sense qualify as electrical engineers.

Electricity Always In Ether ~

As near as a layman can understand, Mr Perrigo's theory is the revolution of the earth sets up a form of electric currents that are forever present in the ether. His theory is to capture those electrical impulses in very much to same way that a radio antenna picks up the programs broadcast from WDAF. Instead of a machine to turn the radio impulses into music, Mr Perrigo has a machine to turn the ether's electrical store into controlled power. He declares it is really no more mysterious than the fact that an electric dynamo picks electricity out of the air, although the dynamo must have a power to revolve it while his device sits perfectly still and seemingly produces many fold more electricity than a dynamo of the same bulk.

Demonstrating the different nature of this electricity, Mr Perrigo showed how high voltage could be transmitted over hair-size wires and light a series of electric lamps although a sufficient power of the well known electricity to light those lamps would have melted the small wires immediately.

Clearer Light Than Usual ~

And it imparted an unusual glow to the electric lamps, giving them a clear brilliancy with none of the effervescent haze that surrounds the wires in a lamp when lighted with ordinary electricity.

Mr Perrigo has spent years on his invention. Years ago he conceived the idea that there was an unlimited source of electricity in the air that could be harnessed with a collector. He has not reached the present measure of success without a row of hard knocks along the way.

In whatever neighborhood he has lived since moving here 15 years ago, it has been common knowledge that Mr Perrigo was the frequent victim of electric shocks that often came near proving fatal. He has been revived by pulmotors time and again.

The first model of his device was constructed with makeshift material. A leaf from Mrs Perrigo's dining room table was the basis, with the bread box used, sheets torn up and the strips shellacked to be used for insulation. But as junky as it was, it operated a small motor, and that original model is still preserved and used a s part of his demonstration.

Sickness Delayed His Work ~

In 1922 he got the device to such a point of perfection that he went before Congress and defeated a war-time measure that proposed to give 17-year rights to another person for a blanket patent on all free energy devices.

Then three years of sickness came, and the invention progressed slowly. Mrs Perrigo is not electrically inclined, but she has carried forward the experiments under his direction and has always been his assistant.

Mr Perrigo is not offering stock for sale and says he has made all necessary arrangements for financing the device when it is ready for manufacture.

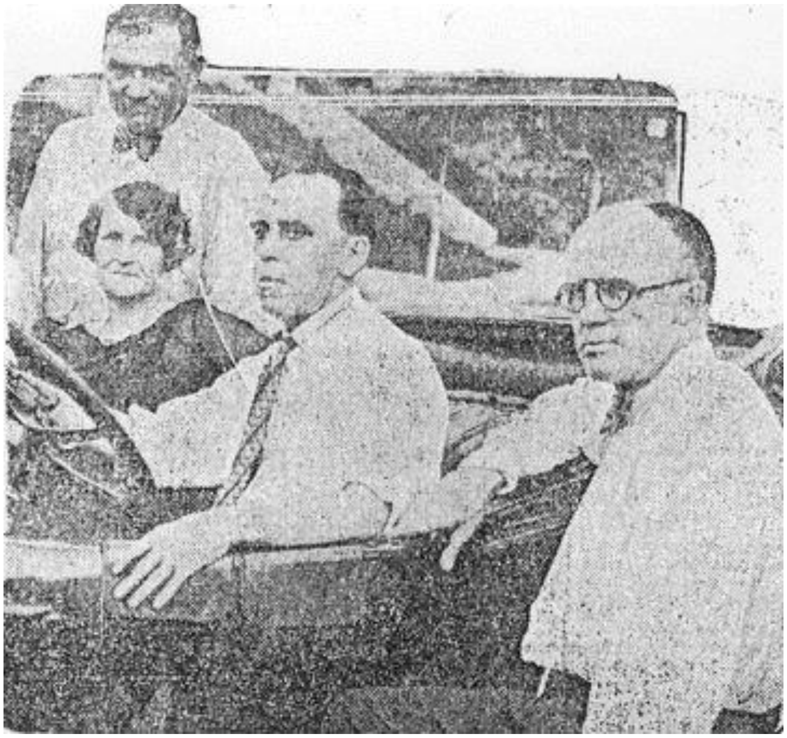


Photo Caption: In a semi-public demonstration here yesterday of an invention said by its inventor to be able to collect electricity from the ether, in unlimited quantity and without cost, a motor car was propelled with perfect success, then an examination of the car allowed to show the absence of engine, storage battery or other usual form of power. The upper photograph shows under the motorcar hood, engine missing and an electric motor in its place. The equipment above the motor is a series of resistance coils, the collection device used being too powerful for the motor. The middle photograph shows the collector placed on the floor by the driver, a makeshift arrangement for the test. Below is Mr Perrigo, with his wife, seated in the test car. Lou E. Holland, president of the Chamber of Commerce, is standing on the near side of the car. Col. Paul E. Henderson, general manager of the National Air Transport, Inc., stands on the other side. They were among those attending the demonstration.

Kansas City Times (August 8, 1927) ~

"Electricity from the Air"

H.E. Perrigo, a nervous, red-haired little electrician, stood last nigh among a confused display of strange devices in is basement workshop at 1116 Bennington Avenue. He was still a bit haggard from an illness of three years, but is energy, dynamic as that which his devices "pick out of the air", was unabated. Mr. Perrigo had just returned from a conference with Lou E. Holland, president of the Chamber of Commerce.

"There are no batteries in this room", he said. "There are no light and power wires. There is nothing but these unconnected accumulators you see before you."

On an old kitchen chair stood an object about one and one-half feet square, several inches thick. It appeared to consist of two parallel metal squares, separated and held together by numerous pegs woven around which was a maze of thin copper wires. It stood on edge, resting against the back of a chair. On the seat of the chair was a round metallic object, resembling, at a glance, a huge spring, a foot and a half in diameter, from an alarm clock. In a mechanical sense it was in no way similar. But it might as well have been an alarm clock spring, for all Mr. Perrigo would tell of its construction. The first object was the collector, the second the generator.

No Moving Parts, No Wheels ~

Neither had any moving parts. They have no wheels. They are immobile, simply an arrangement of wires. On the to edge of the flat box was a switch. Thence ran two wires, connected with forty-five 100-watt standard electric light bulbs.

Mr. Perrigo pulled the switch. There was no arc as the contact was made. The 45 bulbs flashed brightly and burned with a steady white glow. There was never a flicker. He turned 44 lights off, leaving one. It did not flicker as the 44 lights went off and on.

"This little device, the Perrigo Electric Accumulator", said Mr. Perrigo, will light 8,000 bulbs as easily as it lights one. I can build one of any size, to produce the results that any amount of dynamo electricity will produce."

He picked up a little narrow box, in the top of which was a pane of glass, through which one might see more pegs, more intricate wiring. He connected a small electric fan to the poles, and the fan whizzed.

Tests Everywhere But Under The Sea ~

"There are skeptics yet", he said. "Some think I am picking up leaking electricity. This free energy device has been tested at an altitude of 12,000 feet, on the sea, on deserts, everywhere except in a submarine. Everywhere it runs smoothly, without fluctuation".

In his Reo roadster he had a large motor mounted, the one he demonstrated Saturday to Lou E. Holland, president of the Chamber of Commerce, and Col. Paul E. Henderson, general manager of the National Air Transport, Inc. Mr. Perrigo crawled into the seat, threw a switch, and a big all-speed motor, standing in the place of the gasoline engine, roared.

"Rheostat control", said Mr. Perrigo. "It will run at all speeds. I do not need clutches".

There were two "mystery boxes" in the car, one of which picked the electricity out of the ether, the inventor explained, another which regulated its intensity.

"It will be on the market in the near future", Mr. Perrigo said. "I cannot say more at this time. It will be manufactured by a Kansas City company.

"We do not intend to harm the men who produce electrical current by other means. Perhaps they will manufacture and distribute the little units. The can do it gradually, so there will not be a sudden, destructive revolution. That is bad economy. There is to be no monopoly. But eventually there will be a unit in every home. There are no moving parts. A unit will last a lifetime".

Patents were pending, Mr. Perrigo said.

His Idea 15 Years Old ~

The germ of the invention, Mr. Perrigo related, came to him 15 years ago in Pee Dee, NC, when he was employed in an electric power plant.

"All of the dynamos were off", he said. "I was working on a dead one. I encountered some hot wires. Yet there was no juice being produced. It gave me an idea. Three years later I began developing it. I have worked on it since at odd times. About 8 or 9 years ago I began intensive work on it. I demonstrated it experimentally in 1922. Now it is perfected. I want the world to know it is a reality".

Mrs Perrigo came downstairs and cautiously proceeded into the workshop.

"Is the floor too wet?", she asked. "Might I get a shock?".

He reassured her.

"I’ve been laid out so often", he said, "no wonder she’s timid".

There was a tremor in Mrs. Perrigo’s voice as she spoke.

"I'm so glad it's all over", she said. "We've given years of our life to it, Mr Perrigo almost has broken his health over it. It's done. We can rest now."

Mr Perrigo leaned against the wall and talked.

"Think of what it can do for the world", he said. "Money isn't all. It will give the farmer unlimited power. It will drive motor cars, run the washing machine, carry an airplane forever. Can't you imagine what all it will do?"

Some one suggested man would never have to do another lick of work on earth.

"Oh, no", said Mr Perrigo. "He must never quit working. He must work on and on and on."

Definite steps were being taken to protect not only the inventor but the user and producers of electrical current, Mr Holland said last night, following a conference at his home.

Must Protect Users & Makers ~

Mr Perrigo's invention is so revolutionary in scope that many interests into its manufacture and use", Mr Holland said. "All of these interests, the big producers of power and the users of electric current are concerned and how these interests along with those of the inventor shall be protected is a matte for first consideration."

It was pointed out that there were innumerable corporations engaged in the production of electric current and billions of dollars invested in power plants, machinery and transmission lines. The successful use of the Perrigo device would make the power plant systems of the country obsolete.

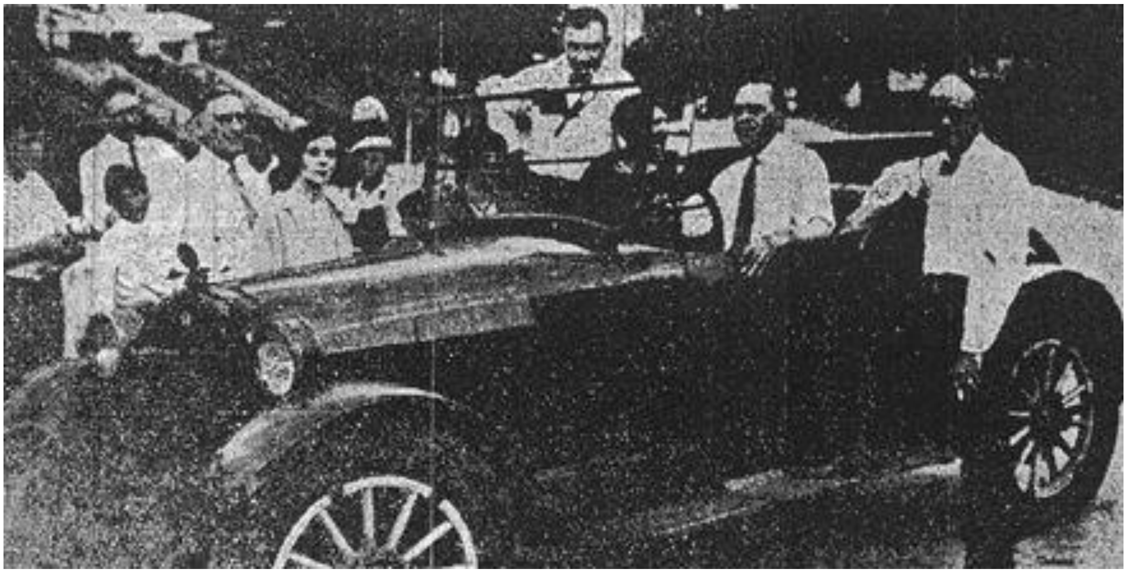
No stock was offered in the invention, Mr Perrigo said. Arrangements have been made for financing the manufacture of the device when it is ready for the market.

"The parent company will be here and the first machines made in Kansas City", Mr Holland added.

Kansas City Journal-Post (August 8, 1927) ~

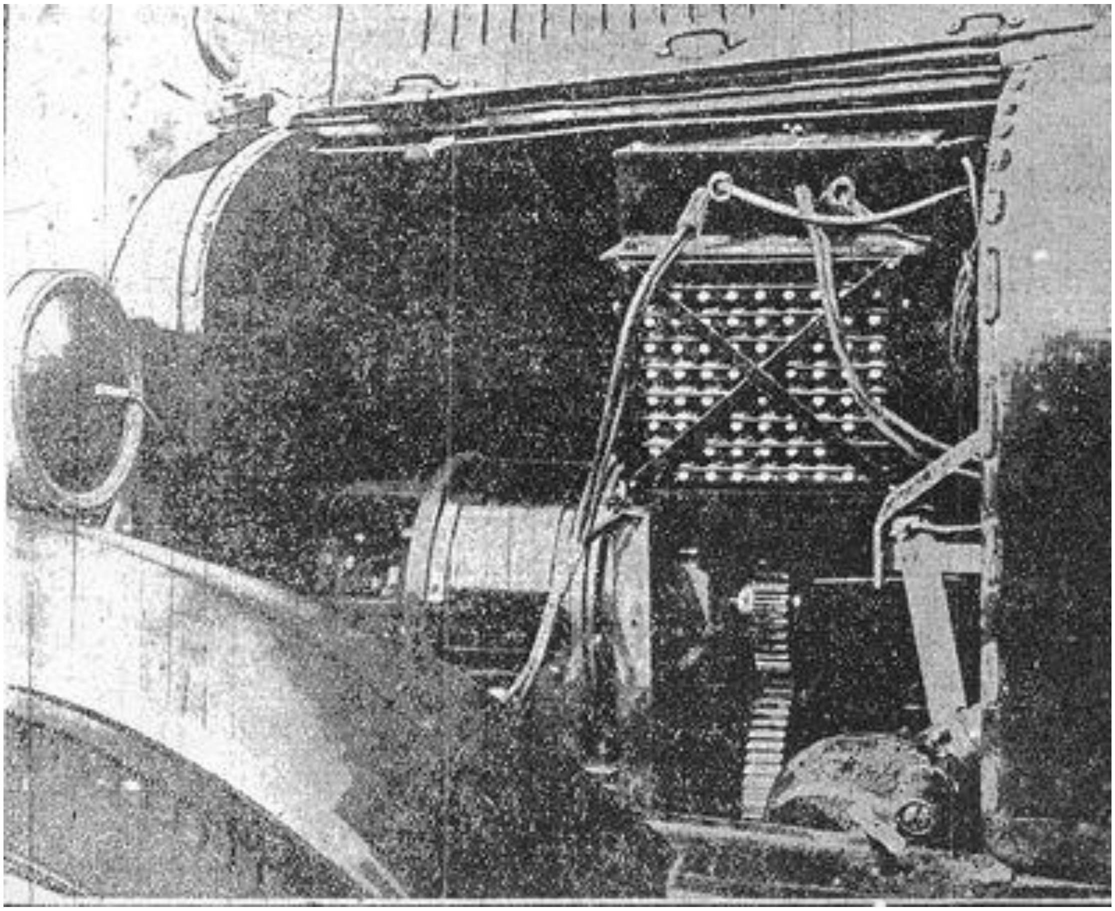
Harry Perrigo, 1116 Bennington Avenue, inventor of a device which, he says, draws electrical energy from the air, yesterday demonstrated the invention before Col. Paul henderson, vice-president of the National Air Transport, Inc., and Lou E. Holland, president of the Chamber of Commerce. The device was used to propel a motor car from which the motor had been removed at a rate of 40 miles an hour.

Mr & Mrs Perrigo are shown in the motor car. Mr Holland stands at the left of the car and Col. Henderson on the right ~



Mr Perrigo at the wheel, explaining the apparatus to Col. Henderson ~

A closeup of the mechanism. At the left is an ordinary motor. A cog wheel on the motor shaft meshes directly with a larger cog on the main drive shaft of the car. The square mechansim at the top is the controlling device ~



Kansas City Star (August 8, 1927) ~

"A Magnet For Money, Too"

The Power From Air Machine Has Been Backed for 14 Years --- Some Still Are Faithful to It.

The "energy from air" device demonstrated Saturday by H. E. Perrigo when he seemingly operated a motor car with electricity taken from the free air, got almost as much attention today when investors bobbed up from all corners of the city and told of having bought shares in his device as far back as 14 years ago.

So many tales of investing as much as $10,000 in Perrigo's hope came to light today that the state blue sky commissioner and the Better Business Bureau began an investigation.

The Investors Are Interviewed ~

Several of the investors in Perrigo's device were interviewed by those agencies.

All the investors talked to were of the opinion that Perrigo was impractical as an organizer, to say the least, and that they had been swindled on a gigantic fake or that Perrigo really had some great invention, but was unnecessarily slow in commercializing it.

Preston T. Stockard, blue sky commissioner, said after talking to a few of the investors that he would demand a showing of the merit of the apparatus, and would question Perrigo as to his financing plans, preparatory to issuing a "stop order" against any more sales of stock.

Mr Perrigo said at the demonstration Saturday that he was selling no interest or shares in his invention and that he had met expenses while experimenting by doing outside electrical work. Mrs Perrigo, however, said their financial problems had been met by "occasional financing as is always done".

As far back as 5 years ago, a group of persons who had invested met and discussed the possibility of prosecution for the share sales or of taking some action to get control of the device away from Perrigo and find out whether it really had any merit.

No One Could See Machine ~

Even persons who had given him money for a share were refused an opportunity to investigate the machine, and the whole investigation was dropped at that time.

But the publicity resulting from his demonstration Saturday brought those investors to the front again today.

There is not one in the lot who has seen demonstrations of Perrigo's devices, and all are convince that he has some radical departure from known devices, even though it might not be the revolutionary thing he believes he has.

They were given demonstrations at the time they put in $1,000, in some instances, more usually $2,000 and as much as $10,000 in two known cases.

Those persons said today the demonstration Saturday differed from previous demonstrations only in that a motor car was operated, seemingly with more power.

In one instance, that of Mrs Blanche Casey, the complaint was made that Perrigo's device was being used for no other purpose than to obtain a constant income of subscriptions. She and her late husband had $2,000 invested, getting in return a contract agreeing to give them 1% of whatever capital was issued when the device was marketed.

That contract was made in 1920. Mrs Casey said today she would be glad to take $1,000 for her contract because she was convinced Perrigo was incapable of commercializing his invention, even though it is all he says it is.

Mrs Casey said she and Dr James F.A. Casey, later to become her husband, were in the motor car business together at that time and that they went with a mutual friend to Perrigo's house for a demonstration.

Little Change in Seven Years ~

She told of the details of the demonstration and they were identical with most of the demonstration Saturday, which was seven years later. Mrs Casey said her husband became enthusiastic and desired to invest, but Perrigo refused to accept any subscription, declaring he had all the money he needed.

At that time he told them, she said, of getting the idea for the device from an old man with whom he had been friendly and that just before the aged friend died he passed the secret on to Perrigo.

As they drove away from Perrigo's home, the inventor rode with them, and suggested that it would be "a dirty trick not to let Dr Casey in on it", so let them have 1% for $2,000, first pledging them to secrecy.

Mrs Casey said that a short time afterward Perrigo came to Dr Casey and herself, offering another 1% share for $25. That created suspicion and they investigated among their friends, finding many others had bought shares and had been sworn to secrecy as they had been.

Mrs Casey said the decision she and her friends reached was that Perrigo most certainly did have some unusual electrical device, but that his failure to put it on a commercial basis must mean that it was really what it was set up to be.

Then, she said, they attempted to investigate and learn whether some commercial use could be made of whatever Perrigo did have, but that line was balked by his refusal to let anyone investigate.

Mrs Casey offered her contract for perusal today, expressing willingness that it should be published so other investors could make comparison.

Her contract:

This agreement made and entered into by and between H.E. Perrigo of Kansas City, MO, hereafter called first party, and James F.A. Casey and Blanche C. Ellis of Kansas City, MO, hereafter called second parties, witnesseth, that:

Whereas, H. E. Perrigo has invented a device, apparatus or machine for extracting electricity out of the air, known as an electric accumulator; and,

Whereas, it is the intention of the said H.E. Perrigo to have said electric accumulator protected by patent either through the patent office or by grant direct form Congress; and, Whereas, it requires additional money for the development of said invention and drawing of plans and maps to be submitted to the patent office and for traveling expenses; and,

Whereas, the second party is desirous of having an interest in said corporation when so formed, now, therefore, it is agreed as follows:

Seven hundred and fifty ($750) dollars to be paid on the 20th day of April, 1920, the receipt of which is hereby acknowledged and the balance to be paid in monthly payments of two hundred and fifty ($250) dollars each, to be paid on the 20th day of each succeeding month thereafter, up to and including the 20th day of September, 1920, the first party will issue to the second party an amount of the capital stock, no matter what the capital stock may be. That is to say, that the second parties shall receive only one percent (1%) of said capital stock by reason and virtue of this contract.

2. It is clearly understood and agreed, however, that said first party shall not be liable for damages to second parties in the event that said H.E. Perrigo fails to obtain the patent either from the patent office or through Congress.

3. Said second parties fully appreciating and understanding the large possibilities of said invention and also appreciating the fact that said two thousand ($2,000) dollars is but a small consideration to be paid for the rights granted herewith, therefore, it is understood and agreed that in the event no patent is allowed or granted on said device, apparatus or machine that said first party may retain in the consideration herein paid and shall not be liable to said second parties in any manner whatsoever.

H.E. Perrigo, First Party.

James F.A. Casey, Blanche C. Ellis, Second Parties.

Invest After One Call ~

Another instance of an investor buying after one demonstration was that of a Chicago physician, Dr Louis Lyn Wall, who put $2,000 in for stock when he went with a friend to call at the Perrigo home.

The very first investor was George Breting (701 W. 32nd St). Mr Breting said he put money into the deal as early as 1913. His contract, he said, was different from the one given Mrs Casey, in that it specified Perrigo should use the money for living expenses, experimental work and anything necessary in developing the device.

Mr Breting Not Dissatisfied ~

Mr Breting was not dissatisfied with his investment. He expressed confidence that Perrigo actually has something that was revolutionary and that he was moving toward a patent and commercialization as rapidly as possible.

A conference of a group of investors in the project some time ago to attempt something that would speed up action was mentioned by Mr Breting, but the movement was dropped when it was found Perrigo did have an application of some sort in the patent office.

A rough estimate of the amount of stock sold that he knew about was made by Mr Breting and put the figure at $30,000 to $40,000. The blue sky commissioner was able to name several stockholders that were strangers to Mr. Breting, however.

No one of the investors was able to estimate what percent his total valuation of the device has been sold already by Mr Perrigo, and the varying percent of his valuation he gave for a given amount of money would make it impossible to make a reasonable calculation.

Another thing coming to light today as a result of the publicity attending the demonstration was a shadow of question thrown on the instances in which Perrigo told of being shocked into insensibility while experimenting with his device.

Told of Hysteria Swoon ~

A physician who has attended him several times told today f an instance when Perrigo was standing on the street and fell in a swoon, becoming rigid. It required several hours to revive him. Later on the same physician attended him after on of the shocks received while experimenting and found Perrigo's condition to be identical with the "acute hysteria" swoon.

One of the shareholders in the device expressed the intention today of going into court to force a showdown on the development of the device. The plan tentatively outlined was to ask the court for a receiver for the device, setting up a minority stockholders' plea of mismanagement and undue delay.

Then, it was pointed out, a cold-blooded businessman could submit the device to competent electrical engineers and find out whether it was revolutionary or a monumental fake. It was also pointed out that even though the entire think should turn out to be a fake, there must be something electrically unusual in its construction --- a powerful, new type of storage battery, a method of storing electrical energy in wires, a device for picking up electricity from outside sources, or what not --- and that principle might be put to commercial use to repay the money invested.

Kansas City Star (August 9, 1927) ~

"Known Investors With Perrigo"

William Pitt, $5,000; Earl G. Wallingford, $1,000; Harry Brandt (~) $1,000; George L. Breting, (<) $1,000; Dr Bert McDowell, $2,000; E. J. Bowers, $500; J.J. Rode, W.A. Rode, E.A. Rode, H.A. Rode, F. J. Rode; the Rode brothers financed Perrigo in the earlier days of his "experimenting" with about $2,000.

William Pitt, former vice-president of the Irving-Pitt Manufacturing Company, accepted H.E. Perrigo's free energy scheme --- proved fake yesterday --- at its face value about 5 years ago and financed several machines.

Mr Pitt paid Perrigo's wages of $40 a week for 10 months and bought materials for the experiments. In all, he estimated he spent $5,000.

He withdrew after Perrigo constantly evaded a test of his machine by experts.

"Perrigo and I worked on the machine at the laboratory at my home", Mr Pitt said last night. "I think that if Perrigo is sincere he should submit the machine to an analysis of experts in electricity. In the 10 months I dealt with him, I was unable to get a demonstration from which I could form an opinion or prove anything. I built three or four machines under his supervision."

Mr Pitt then was told the fraud was uncovered.

Built In Pitt's Laboratory ~

"The machines were made in my laboratory", he continued. Perrigo went to the Irving-Pitt company and Mr Irving became interested in the idea. He turned it over to me with instructions to find out whether there was anything in it. I entered into a contract with Perrigo to build the machines in my laboratory. I agreed to pay him $50 a week salary and buy materials for him. This was to go on until the device was perfected and fit for a demonstration. I think our contract terminated when I quit paying Perrigo.

"I tried repeatedly to get a demonstration of the machine. Once while I was away, Perrigo demonstrated it for Mrs Pitt and my son. But when I wanted a demonstration, the model was burned. Perrigo explained that something went wrong and it was short-circuited.

"I think the collector, or accumulator, Perrigo used in his demonstration this last time, was mine. I worked with him and built the machine, but never saw it work.

Venture Stopped With Pay ~

"Finally I tired of the business and quit paying Perrigo and that was the end of the venture at my house."

Mr Pitt lives at 44th Street and State Line. He said he still had two of the models.

"I was one of the suckers to the extent of $1,500", Earl G. Wallingord of Wallingford Brothers, grain dealers, said last night at his home (6015 Wyandote Street).

"That was 8 or 10 years ago", Mr Wallingford added. "I bought a percent interest in the prospective development, as I remember it. He was clever with his device and fooled me, if it is a fraud. I am no electrician, of course, and I thought I investigated carefully, but really could not have detected any electrical trickery."

The First Investor ~

George L. Breting (701 W. 32nd St), a salesman for the Mack International motor truck Corporation, is believed to have been the first person to have found Perrigo's demonstration convincing. In 1913 he invested a small sum after seeing Perrigo's basement illuminated by "energy from the air". He was a neighbor.

He said he never found any reason to doubt Perrigo's sincerity and always believed he had an idea but had been unfortunate in attempts to commercialize it.

When informed last night the bubble of 15 years had burst he was philosophical about it.

"I confidently expect my name to head all the sucker lists in the country from now on", he said.

He indicated he would support any attempt to prosecute Perrigo but because of the small sum invested would not take the initiative.

He Contributed $1,000 ~

Harry Brand (124 Hunter Ave), a storekeeper for the Kansas City Public Service Company, paid slightly less that $1,000 for an interest of one-tenth of one percent in a company to be formed to market the device. He expressed a desire to see the fake inventor prosecuted, but said he admired Perrigo's nerve in making a public demonstration.

Faith in Perrigo's "free energy" machine was steadfast with E.J. Bowers, a contractor (5820 Cherry St), until last night. He is out $400, he said.

"I don't feel bad about it", he said cheerfully. "I am over 21 and I figure if I made a bad investment nobody suffers by it but me."

Dentist A Victim ~

Dr Bert McDowell, a dentist (5933 Oak St), invested about $2,000 about 10 years ago when the McDowells and the alleged inventor were neighbors, Mrs McDowell said last night. Perrigo made sop many requests for more money that Dr McDowell became suspicious. An electrician, a friend of Dr McDowell, attempted to examine the device but was ordered away by Perrigo. Mrs McDowell said her husband finally shut off further pleas for money by telling Perrigo he believed the scheme was a fraud.

P.J. Hodgins, a lawyer (2917 E. 29th St) with an office at 436 Ridge Building, handled Perrigo's legal business for a short time, he said last night. Mr Hodgins said he did not represent him now.

About 1921, Mr Hodgins said, Perrigo applied to him to get a patent for his machine. Application was made and Mr Hodgins did the corresponding.

Mr Hodgins said he did not invest.

Kansas City Star (August 9, 1927) ~

[No Title Available]

The biggest and best planned fake of the last decade blew up with a bang yesterday afternoon when the Star, the better Business Bureau and the blue sky commissioner of Missouri launched an investigation of H.E. Perrigo's fantastic device for drawing electricity from the air, demonstrating it by propelling a motor car.

The whole fake turned out to be nothing more than small but powerful storage batteries cunningly concealed in the upholstering of the car, with a mass of complicated wire coils lending mystification.

Thus the invention took its place with the rubber fenders and the self-calling golf ball that have helped to make George Bungle a household word.

Behind Perrigo's free energy fake was the money motive, brought to light by the first phase of the investigation when numerous persons were found who had poured all the way from $1,000 up to $10,000 into the dream, as far back as 14 years ago.

Insisted On Immediate Test ~

The actual cracking of the Perrigo bubble came in the midst of what was supposed to have been an electrical test of his device, forced on Mr Perrigo immediately by authorities insisting on a scientific test, while Perrigo insistently was demanding a delay of a few days.

It came when an inquiring reporter for *The Star* pushed his arm down into the framework and upholstering at the back of the seat, wormed the hand as far as it would go into the depths and found the familiarly shaped connections used on storage batteries.

Perrigo became violently excited, pouncing on the investigator and fighting to prevent the disclosure of the storage batteries he had vehemently denied existed.

Then the battery men who had sold Perrigo the batteries, identified the product and, by electrical tests, proved to themselves the current Perrigo was putting into his motor was exactly that which the batteries would have supplied.

Perrigo Doesn't Give Up ~

Chattering and shouting in broken words, Perrigo still insisted his "free energy" device was the thing that furnished the power and that the batteries had nothing to do with it.

But with the battery power disconnected the voltage of the remarkable "free energy" device was gone. The motor wouldn't start and the wires were dead.

To being at the start of the cracking of Perrigo's monumental fake, the bug of doubt was installed when his own story of his invention and the method by which he had developed it was found to be full of discrepancies that were too apparent to be mere slips of his memory.

Selling "Shares" For 14 Years ~

In the first place, he had insisted there had been no stock or shares sold in his invention and that none was for sale. But it was found that at least $40,000 and perhaps much more had been taken in by Perrigo, beginning as far back as 1913.

In each share-selling period, Perrigo had staged a demonstration, sometimes on a smalls scale, sometimes on a larger one. Each time he declared he had patent proceedings on the way and did not want to sell any interest in his device.

There Were Many "Investors" ~

But it developed yesterday, each time a few victims had been roped in, even begging to invest their money. Perrigo's demonstrations were thoroughly convincing to any person who did not know too much about electricity.

Yesterday two officials of the Electric Storage battery Company reported to the better Business Bureau that two days before the latest demonstration they had delivered to Perrigo a storage battery of small dimensions that would easily supply enough power to operate a motor car as Perrigo did Saturday.

J. D. Fischer, branch manager of the battery company, and C.W. Wilson, assistant manager, gave George M. Husser, manager of the Better Business Bureau, the specifications and cost of the battery sold to Perrigo.

It consisted of 72 small batteries with a total size of 13-1/2 by 14-1/2 by 10 inches.

They told how Perrigo ordered the battery built specially, and demanded that it be strong enough so that at the end of an hour's constant use it still would be delivering 30 amperes at 110 volts. That much current, they said, was enough to operate a motor car at any speed to which it was geared, for several hours.

The Probe Starts ~

Perrigo was called to the office of Lou E. Holland, president of the Chamber of Commerce, who had shown a keen interest in the development of the device and had been investigating it. There Perrigo was met by a reporter for *The Star*; the state blue sky commissioner, Fenton T. Stockard; the representative of the Better Business Bureau, C.E. Buehner; and the men who had sold him the battery.

Perrigo was asked the direct question, whether he had bought a powerful storage battery recently.

He answered, emphatically, "No."

Then the storage battery men were introduced and described the battery they sold him.

"Well", he admitted, "I did buy that battery, but it was for experimental purposes."

Battery Cost Nearly $200 ~

"Why did you buy such a powerful battery, that cost you $194.20, if you could get unlimited power from the air?"

"Because I wanted to test some coils."

"Where is the battery now?" he was asked.

"That's my business and nobody else's", he answered with a shrug of his shoulders.

Mr Stockard then said to Perrigo:

"You put on a public demonstration of a device Saturday and have been selling stock in that device. Now we have learned you have bought a battery that could have been used to furnish the power you say you get from the air. There is a possibility of crooked work there and you must show us that battery or I will have you arrested here and now."

Perrigo quailed at the word "arrest".

"It's out of my possession. It is not in my house. It is not in my car. It's out of my possession."

Then he was told that he must tell where the battery went from his possession so it could be traced down and the possibility of fraud cleared up.

"I gave to a junk man", he blurted.

The battery men interrupted to ask why he would give a new battery to a junk man instead of returning it for repurchase, which would have been done at only a 10% loss.

"I didn't know you would do that", he argued, but could not explain such ignorance of electrical trade practice when he had spent his life with electricity.

The questioning then veered to the sale of shares. Perrigo denied at first that he had ever sold any shares or stock.

Then one of the contracts given to a "customer" in 1920 was exhibited to him and he admitted he had sold such shares.

Mr Stockard told him the preliminary investigation indicated he might have sold as much as 200% of the invention, and he admitted he could not supply a list of those to whom he had sold.

Nor could he fix any price per unit at which he had sold. Some investors had paid $2,000 for a 1% share in whatever profit the device ever brought, others got 1% for $1,000 and one instance is known where he offered 1% for $25 at a time when business was not so good.

From shares the quizzing went back to the question of the storage battery. Every person in the room knew Perrigo was far from the truth when he had insisted he gave it to a junk man.

Several propositions were made to him whereby he could demonstrate that the "free energy" propelled motor car did not get its strength from that concealed battery.

It was outlined clearly to Perrigo that he must accept one of the propositions or leave the room to face arrest.

Perrigo was hard to pin down to listen to any one of the proposals. He had one of his own.

"I will fix up that car without a body on it", he said. "There will be nothing but the chassis, the motor and the accumulator. You can drive it anywhere and as long as you want to. All the secret connections will be inside of one-half inch pipes and I will trust you not to open them."

Perrigo was pressed "to the wall" on that proposition.

"You are only stalling for time", he was told.

He was offered a proposition that the car be submitted to a rigid search for the batteries; with the guarantee that the body and upholstering would be restored to perfection.

That proposal, however, repeated over and over, was ignored by Perrigo and he kept countering with a pleas for a delay in the test.

Then the battery men announced they could make an electrical test of the current operating the motor in Perrigo's car that would prove conclusively whether it was being operated by batteries.

They proposed to connect instruments that would measure the amperes and the voltage, then run the motor for a period of time. If the power was coming from the battery, the power would decline steadily as the battery was drawn on. If it was really "divine power", then there would be no let-up in the current.

Perrigo weakened on that offer and showed signs of willingness to submit to such a test.

But the cleverness he thought was going to pull him through that test was met by science on the part of the battery men.

Perrigo's idea was to run the motor idle. He told in detail why it was not geared to go out on the streets and pull hills to show it under power. But the battery men volunteered to set the brakes until it showed a certain amperage going through, then they could estimate the length of time required to show a decrease in the battery.

Perrigo objected to wearing out his brakes, but when a brand new set of brake linings were promised to him his last excuse was gone, and besides, the group was tiring of his evasions.

The entire group moved from Mr Holland's office to the Perrigo home at 1116 Bennington Avenue. They gathered at the back door of the home where the "free energy" propelled car was stored in a basement garage. Perrigo went inside, leaving the others waiting outside.

There was a lapse of an hour. Just why Perrigo was hesitating could not be deducted by those waiting.

Finally Perrigo sent Mrs Perrigo to the back door and called for Mr Holland to come inside. At last Mr Holland reappeared and announced he had convinced Perrigo the test must proceed, but Perrigo had asked that all persons be barred from the basement except those who were present in Mr Holland's office downtown.

The first test was a test of one of the battery men. Perrigo took him to one side and asked him to be easy in making the test.

"This is a new machine", Perrigo pleaded, "and if you're to hard with me it will destroy my chances."

Then he went back to the car and objected to the electrical testing devices which the battery men had brought from their plant. The trademarks of reputable manufacturers were shown on each of the devices and all were shown to be scaled.

Next it became a question of connecting them in the right places. Perrigo actually was unable to show the men which were the proper wires, creating the doubt that he had been doing the real electrical work in his fakes and that he might have had an accomplice to do the work, while he features the sale of stock, the demonstrations and the ballyhoo.

After much sputtering of the wires, a test was obtained on the voltage going into the electric motor and it was found to be exactly that of the battery sold to Perrigo.

Another device was about to be connected in, when it became necessary for Perrigo to go upstairs to answer the telephone.

While he was gone, the reporter for *The Star* lifted the lid of the little compartment built at the top of the seat back. A large crack was exposed, opening into the space behind and beneath the toolbox. His arm was pushed in sideways, then by reaching far down into the open space there his hand came in contact with a dumbbell-shaped connection such as is used on ordinary batteries in motor cars.

A battery man was called and he reached into the hole. His report was that the entire set he had sold was there.

Then Perrigo returned, but not in time to find anyone searching for his batteries.

He was asked whether there was any battery about his car.

"There is not", he answered emphatically.

Then he was told about the batteries found in the concealed space and denied that such was true.

The Star reporter reached to uncover the battery and Perrigo flew at him in a rage, attacking the investigator. Perrigo was pushed back and the disclosure continued.

The Electric Storage battery men then made a thorough investigation of the battery and pronounced it to be the identical battery they had sold him two days before the big stock selling demonstration and which he said he "had given to a junk man".

The battery was disconnected and the "divine power" machine would not even start the motor. The battery men picked up their instruments to leave.

"Do you say this car is run by those batteries", Perrigo shouted at them.

"No, we do not", one of them answered. "But we do say those batteries have plenty of power to do all you have done with this car and that they furnish the identical line voltage that is coming into the motor."

Perrigo then went into the jabbering and chattering stage, insisting the car was "run just as it was Sturday" and declaring the "world was missing something".

The test came to an abrupt conclusion, with electricians and investigators shame-faced that they had been fooled at all by such a crude fake.

And those who had read Perrigo's claims that he would free them from all drudgery with free and unlimited power, cut off their fuel and ice and lighting bills, drive motor cars and trains and ships and airplanes without cost or upkeep, were given the sad news of another dream gone "blooey".

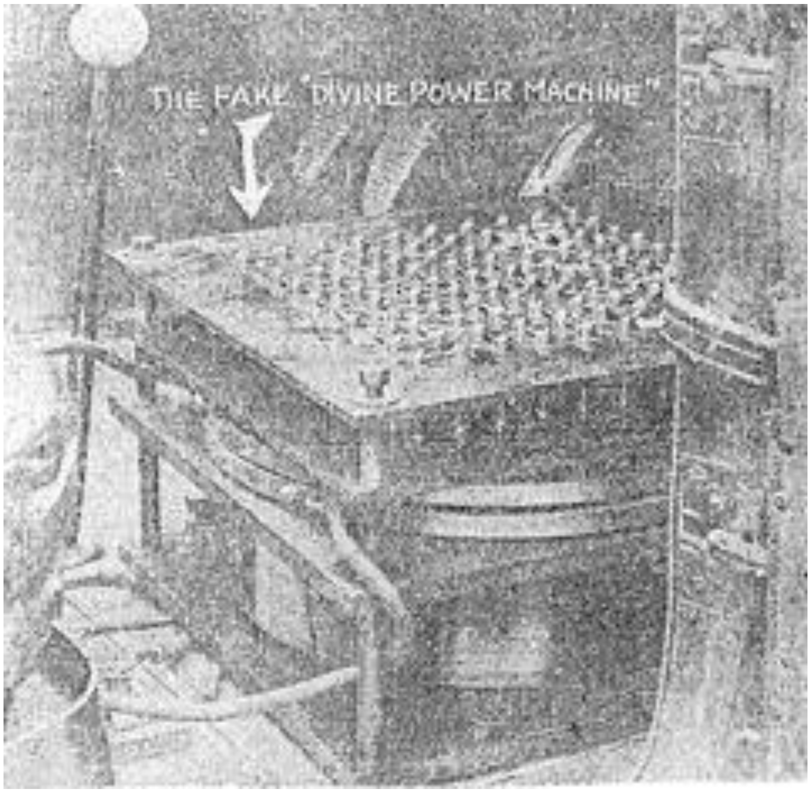
mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

Kansas City Star (August 9, 1927) ~

"Electricity From Air A Fake"

[Photo Not Available]

When representatives of *The Star* and the Better Business Bureau called at the home of H.E. Perrigo, the inventor of high voltage air [?] yesterday afternoon, a crowd assembled to watch the fun. But Mr. Perrigo, who Saturday demonstrated his electric motor car to the world, said he couldn't demonstrate with all that audience. He was in error. There were many little boys in the crowd who wouldn't have asked questions.



Here is the atmospheric inductive coil which Mr. Perrigo made many believe was the source of energy for his Reo roadster. As a matter of fact, the electric motor never touched hands with this machine. Storage batteries concealed behind the seat did the work.

Kansas City Journal (August 11, 1927), p. 2 ~

"'Real Test' Is Perrigo's Aim"

But He Announces No Time For Next Demonstration Before Engineers

Other than that it will be a "real demonstration before competent engineers", H.E. Perrigo has announced no time for a further showing of his "invention", which he declares will take electrical power from the air.

Mr Perrigo apparently was encouraged last night by the faith shown in him yesterday when persons who have backed him refused to attempt to prosecute him following assertions by others that his invention is a hoax.

The test on which the hoax charges are based, he declared, was not a test at all. Those present, he said, did not give him an opportunity to make a fair demonstration and one of them was insulting and boisterous.

"No one who has helped me in my invention", he said, "will lose money. Any competent engineer will tell you sufficient storage batteries to drive a heavy motor car 40 miles an hour cannot be packed in a 28-inch space such as has been charged in regard to my car."

Mr Perrigo was vague as to the time the next demonstration will be given.

"I am willing", he said, "to strip my car down so all its parts will be revealed and let competent men judge whether the power is derived from the source I claim."

Method and Apparatus for Accumulating and Transforming Ether Electric Energy

Harry Perrigo

Department of Commerce, United States Patent Office

To all persons to whom these presents shall come, Greeting:

This is to certify that the annexed is a true copy from the records of this office of the Record for the United States Court of Customs and Patent Appeals in the matter of the Pending Application of Harry E. Perrigo, filed December 31, 1925, Serial Number 78,719, for **Improvement in Method and Apparatus for Accumulating and Transforming Ether Electric Energy**.

In testimony where of I have hereunto set my hand and caused the seal of the Patent Office to be affixed, at the City of Washington, this first day of March, in the year of our Lord one thousand nine hundred and thirty (1930), and of the Independence of the United States of America the one hundred and fifty-fourth.

(Seal Patent Office, United States of America.)
THOMAS E. ROBERTSON, Commissioner of Patents.
Attest: D. E. WILSON, Chief of Division.
Application of Harry E. Perrigo. Serial No.78,719. Filed December 31, 1925.

To all whom it may concern:

Be it known that I, Harry E. Perrigo, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented a certain new and useful Method and Apparatus for Accumulating and Transforming Ether Electric Energy, of which the following is a complete Specification.

The existence of electric waves in the ether has been shown by Hertz. Electric disturbances in the atmosphere known as "atmospherics" are known to produce noises in the telephones of wireless, telegraph stations which in some cases drown the signals being received. Ether wave electric potential is also recognized in various forms which are known to cause disturbances in the normal operation of electric transmission and telephone systems. These forms of electric wave possess potential energy, or capacity for doing work and are commonly described as a peculiar state or stress of a medium called
ether.

The waves used in all known systems of utilizing ether waves, as for example in wireless telegraphy, are Hertzian waves artificially propagated by means of electrical apparatus.

Except when manifest as a force in electrical disturbances, the existing ether waves with an unknown potential heretofore have never been intercepted or collected and transformed into forms of electric energy suitable for doing useful work, previous to my invention and discovery of a method and apparatus for the same. By my invention electric power or energy is obtained for all purposes with out expense other than that of my method and apparatus involved and hereinafter described, for receiving and transforming this electric energy.

The invention as premised has for its objects:

First; To intercept and collect from the general ether field electric wave energy and to transform said electric energy into a form of a distributable, measurable, electromotive force.

Second; To raise the potential of these collected electric waves to a pressure sufficient for applying said waves to practical uses.

Third; A method of intercepting and transforming an electromotive force directly from the ether wave medium.

In describing the procedure of carrying out my invention, and the details of the apparatus, in one form of illustration, which form has been fully demonstrated as being capable of intercepting and transferring electric wave energy, reference is now had to the
accompanying drawings, in which **Figure 1** is an isometric view showing the electric wave interceptor or collector mounted upon the electric transformer, also showing the current distributing connecting wires leading to a rheostat and to a series of incandescent lighting lamps.

Figure 2 is an inverted plan view of the top or positive plate of the wave interceptor, or collector, showing the series of aerial terminals or contacts and the broken or dead end or open circuit (hereinafter in most cases called "broken circuit") connections with the contacts.

Figure 2A is a transverse sectional view taken through the collector aerial plate, and the terminal contacts taken on line 2A--2A of **Figure 2**.

Figure 3 is a plan view of the lower aerial plate of the wave collector, showing the aerial terminal contacts, and the broken circuit connections.

Figure 3A is a transverse sectional view of the lower collector plate and the terminal contacts taken on the line 3A--3A of **Figure 3**.

Figure 4 is a perforated member made of insulating material for containing the resistance coils between the, upper and lower aerial plates, showing the top member or cap of each resistance coil of the series.

Figure 4A is a transverse sectional view of the insulating member shown in **Figure 4**, taken through the series or perforations lowest in position in the member, on the line 4--4 of **Figure 4**, and shows the resistance coils in full lines.

Figure 5 is an enlarged detail side view of one of the resistance coils which are located in the insulated member shown in **Figure 4**.

Figure 6 is an end view of one of the resistance coils with the cap removed.

Figure 7 is a diagrammatic view of the electrical connections between the resistance coils mounted between upper and lower aerial plates.

Figure 8 is a transverse vertical sectional view of the complete ether wave collector, taken on the line 8--8 in **Figure 7**.

Figure 9 is a segmental plan view of the other wave transformer, showing the coil windings.

Figure 9A shows one of the field coils in end elevation.

Figure 10 is a vertical sectional view of the ether wave transformer and the coil windings taken on the line 10--10 of **Figure 9**.

Figure 11 and **Figure 11A** are diagrammatic views of the two halves of the complete coil windings of the transformer, show- the coil windings, the cores of the windings not being shown, these halves being in separate views to facilitate showing the detail to a larger scale.

Figure 12 is a detail side view of the insulated bridges in the air gap of the transformer, and the reversed field windings, as they appear between the bridges, except where marked "open".

Referring to **Figure 2** and **Figure 3**, the upper metal plate 20+ and the lower metal plate 21- constitute the aerials of my system of ether wave electric energy collectors, and the terminal contacts 23 on the plate 20+ and the terminal contacts 24* on the plate 21- are shown connected diagrammatically by the electrical conductors of the system. In the present illustration are shown one hundred terminal contacts, this number corresponding to the number of contacts 23, on the aerial plate 20+, and a corresponding number of terminal contacts 24* on the plate 21-, the terminal contacts or posts 23 and 24* on the respective plates being spaced equal distances from each other in rows of ten contacts in the direction of the length and width of the respective plates, and therefore have corresponding registering positions with each other.

The system of electric wave potential activity in my invention is embodied. in the rapid changes in polarity of broken electric circuits, and such a systematic arrangement of the broken circuits as will cause the ether wave potential to seek a path of lowest conductivity and not overload any one conductor, and as an example of the operation of the system the current path will be electrically traced, and the transmission of the ether wave potential followed from the source of collection to a definite electric wave energy circuit. Let 20+ indicate, with its terminal contacts, the positive source of permeability and conductibility of recognized waves of ether, which invariably act from a north to a south pole. To equalize the general dispersion of these recognized waves of ether for the purpose of effecting polarization of the potentials of the ether waves, the ether waves are
broken and with the change in direction of the wave potential, an electric potential is produced, and the waves of ether are conducted from contact to contact through a system of wiring found, by discovery, and demonstrated to be practical in operation, which produces electric energy or electromotive force between the plates 20+ and 21-, and which plates may be compounded or duplicated.

The system of broken electric circuits which provides means of obtaining the wave potential, is embodied in the system of wiring of both plates 20+ and 21-, and in the transmission of electric waves and change in polarity during their transmission from contacts on the plate 20+ to the contacts on the aerial plate 21-, the method of ether wave conductivity being absolutely collective and accumulative, showing that the difference of electrical pressure as discovered in my system is the source of electromotive force between the ether wave collecting plates 20+ and 21-.

The system of wiring of the plate 20+ will now be particularly described. It has been found that fluctuations constantly exist in the collective capacity of the aerial plates 20+ and 21-. Following the diagram of winding on the inverted top plate 20+ shown in **Figure 2**, the aerial terminal contacts are numbered in succession, from one to ten, beginning at the right hand end of the lower row, then for the next row from 11 to 20, beginning at the right hand of the plate, and so on to the upper row, which is numbered in the same direction from 91 to 100.

The wire connections on the top plate 20+, **Figure 2**, are through a conducting wire 1', one terminal of which is connected with the contact 1, and the other terminal with the terminal contact 2, and also from the contact 1, by the wire 1_o, with contact 12.

Contacts 2 and 13 are similarly connected. A similar connection extends from contact 3 to contact 14. A similar connections are made from contact 3 to contact 4, from 4 to 15, 5 to 6, 5 to 15, 6 to 17, 7 to 8, 7 to 17, 9 to 18, 9 to 20, 10 to 20, 11 to 12, 12 to 23, 13 to 23, 14 to 24, 15 to 16, 16 to 26, 19 to 29, 21 to 22, 22 to 31, 22 to 32, 23 to 24, 23 to 32, 24 to 34, 25 to 26, 25 to 35, 26 to 36, 27 to 37, 27 to 38, 28 to 29, 30 to 39, 32 to 41, 32 to 42, 33 to 34, 33 to 44, 36 to 37, 36 to 47, 38 to 48, 40 to 49, 41 to 52, 42 to 43, 45 to 54, 45 to 56, 46 to 47, 46 to 56, 47 to 57, 50 to 59, 51 to 52, 51 to 61, 52 to 53, 53 to 54, 55 to 64, 55 to 65, 56 to 57, 58 to 69, 60 to 70, 61 to 62, 63 to 64, 64 to 75, 65 to 76, 66 to 67, 66 to 76, 67 to 76, 68 to 77, 68 to 78, 68 to 79, 70 to 79, 71 to 72, 71 to 81, 72 to 81, 73 to 82, 73 to 84, 74 to 83, 74 to 85, 75 to 85, 75 to 86, 76 to 87, 77 to 78, 78 to 88, 78 to 79, 80 to 89, 81 to 91, 82 to 83, 83 to 92, 83 to 94, 84 to

95, 96 to 96, 86 to 97, 87 to 88, 87 to 98, 88 to 89, 88 to 98, 88 to 99, 90 to 99, 99 to 100, 92 to 93, 94 to 95, 95 to 96, 98 to 99.

The lower plate 21-, as seen in **Figure 3**, includes the upwardly extending terminal contacts precisely the same in number and position as upon the plate 20+, the contacts being numbered in successive order from 1 to 100 reversed as to the same characters on the plate 21-, and beginning with the contact at the lower row of contacts and at the left hand corner of the plate 20+ and indicating said contacts 1-2-3-4 and so on to 10, then beginning at the left and numbering from 11 to 21 and continuing in said order to the upper row which are numbered from 91 to 100.

The wiring system of. plate 21- is in broken circuits, as on the plate 20+, the direction of the wires being traced from the contacts at which the terminals of a broken circuit ends, and which will now be tabulated, the ether wave conducting broken circuit wires being charged from their respective aerial contacts.

The wires are traced on the plate 21-, from terminal contact 1, through a straight wire 1^x having one terminal integral with the contact and its other terminal connected directly with the terminal contact 11.

Then through like conducting wires connections are made from contact 2 to contact 3- and from contact 4 to contact 5-, contact 4 to 13, 5 to 6, 5 to 14, 7 to 8, 7 to 16, 8 to 9, 8 to 17, 8 to 18, 9 to 18, 10 to 20, 12 to 13, 13 to 22, l3 to 24, 14 to 23, 15 to 24, 15 to 25, 16 to 25, 17 to 26, 18 to 27, 19 to 38, 21 to 22, 24 to 34, 25 to 34, 26 to 35, 26 to 36, 26 to 37, 27 to 28, 28 to 29, 31 to 32, 31 to 41, 33 to 34, 35 to 45, 36 to 37, 37 to 48, 39 to 48, 40 to 50, 41 to 42, 42 to 43, 42 to 51, 43 to 44, 44 to 55, 46 to 47, 46 to 55, 46 to 56, 47 to 57, 48 to 59, 49 to 60, 51 to 62, 52 to 53, 54 to 63, 54 to 65, 56 to 57, 57 to 66, 58 to 68, 59 to 70, 61 to 72, 62 to 73, 63 to 64, 64 to 74, 65 to 66, 65 to 75, 66 to 67, 66 to 76, 67 to 77, 68 to 77, 69 to 80, 71 to 72, 71 to 81, 73 to 74, 73 to 82, 73 to 83, 74 to 84, 75 to 77, 76 to 86, 76 to 87, 78 to 79, 79 to 89, 81 to 82, 82 to 91 83 to 92, 84 to 93, 85 to 96, 85 to 94, 87 to 96, 87 to 97, 88 to 99, 90 to 100, 90 to 99. Where there is no outgoing wire from one to another terminal contact, a broken circuit occurs on both upper and lower plates.

Between the plate 20+ and plate 21- is an insulated member 22^p composed of a block of fibrous material in which are a series of vertical openings 22^x, these openings being the same in number as the contacts on the plates 20+ and 21- and in the same vertical positions, so that there is an exact registration of openings and terminal contacts. In these openings, are the series of transmission resistance coils 25^x, one of which is shown enlarged, for illustration, in **Figure 5** and **Figure 6**.

These coils are composed severally of a series of straight wires 25*, starting from a group of central wires around. which other wires are wound, to form a body slightly less in circumference than the openings 22' in the fibre block 22^o. At the upper ends of the wires 25 is attached a copper metal cap 25", and at the lower ends a metal cap 25^o. Around these wires, beginning close to the top plate 25', fine insulated wire 26' is connected at one end to one of the wires 25*, and the other end coiled about the collected wires 25* winding the wire to the right and its terminal secured at its lower end to the same upright wire 25* from which the winding wire started thus forming a resistance coil, its right hand winding of the coil, as seen in **Figure 4A** and **Figure 5**, being upon coils in which a resistance is interposed between the contacts from a north to a south pole transmission of the electric wave potentials, and these coils arranged in the series being positioned, in the fibre block, as seen in **Figure 4A**, the change of the polarity of the wave potentials being through the short circuit wires on the plates 20+, 21-, so that wherever the short circuit occurs there is a rapid change of polarity, the activity being greatest in the coils of the least resistance.

Each resistance coil is of a determinate length, and, as seen in **Figure 4A**, leaving a space of the approximate distance from the cap plate 25" upwardly to the line of the upper surface of the insulated member 22^o co-equal with the posts or terminal contacts 23" on the aerial plate 20+, and from the line of the cap 25^o on the lower end of the resistance coils, to the lower surface of the insulated member 22^o similar spaces are provided, so that when the upper and lower plates are assembled, the posts or contacts 23* on the upper plate 20+ enter the spaces and come into contact with the caps 25" of the respective resistance’ coils, and the terminal contacts or posts 24* enter the spaces beneath the lower caps 25^o of the respective resistance coils, and come into contact therewith, as seen in the sectional view in **Figure 8**, leaving between said plates and the insulated member, passages 20^x, 21^x, for air gaps, respectively.

When thus assembled, the groups of broken circuits of the plate 20+ contain an electric potential opposed to the electric potential contained in the group of broken circuits of the plate 21-. As these electric potentials are waves of impulse from a south to a north pole intensity, and there is a constant polarization and depolarization of the electric ether waves, in other words, a pressure sufficient to cause an electromotive force is discovered in the field of the plates 20+, 21-.

A force existing in space and collected therefrom, is the supreme power residing in the electric potential, in an interrupted path, with a rapid change of potentials, and has been utilized in my invention, and its development is further illustrated in **Figure 7** of the drawings, which show the plates 20+, 21-, in their relative opposite positions, and with the contacts on the respective plates 20+, 21-, in contact with the caps of the respective resistance coils, the plate 20+ being prismatic, showing the posts or terminal contacts on the said plate, and broken, circuits on both plates 20+, 21-, the wire connections on the plate 21- being shown in dotted lines.

Let the resistance coils 25^x, of the collector, in electrical connection with the contacts 1-- 1 on the respective plates 20+, 21-, indicate the lines of force passing from contact to contact, the said plates 20+, 21-, with their contacts being the terminals of serials through which the electric ether is collected. The winding of these coils are all similar and wound so that the flow of the medium around the coils is from the upper terminal of the coil, which is a north pole, and toward the lower terminal or south pole.

The aerials collect and transmit a flow of the ether or wave energy through the conductors from what ever direction the potentials of the ether are collected, and obtain a pressure of sufficient force to effect a movement in the direction of the least resistance from north to south, through the resistance coils 1 to 100, transmitting a flow of the ether medium or wave energy between all of the contacts on the plates 20+, 21-, the flow being governed by the lines of the least resistance, there following two pressures between the north and south poles of the first coil, the pressures

being of opposite potentials, and caused by the
opposite polarity of the coils, and the electromotive force thus produced between the plates 20+, 21-, is constant, one line of force being broken by a line of force of a different potential, and these forces all tending toward a common polarity, while producing an electromotive force, in the opposing resistances of these opposite wave potentials. The method of obtaining electric energy as above described, resides in reciprocal lines of force being established by means of such broken circuits and resistances, as are found by practical results to produce an amperage of current or wave energy, and as the action of
the collective broken circuits with reversed polarities produce positive electromotive force, the outgoing conductor 101, leading from the aerial terminal contact 91 on the plate 20+ and the outgoing conductor 102 from the aerial terminal contact 100 on the aerial plate 21-, are connected to the outer magnetizing coil windings of the ether wave transformer, and electric energy is thus obtained.

The amperage of the current or electromotive force collected or accumulated by the ether wave collector is of low intensity, and for the purpose of increasing this intensity, so that the electromotive force may be brought up to a commercial standard, this force is collected and regenerated, one factor being supplemented by another, until the electromotive force is built up to the standard of electromotive force required; that is, the principle within the collector (in the collection of the electromotive force) is applied in a larger degree to the ether transformer, the transformer being the adjunct to the collector, one feeding a low potential to the transformer, which increases this potential of the collector to a higher potential, a dependency existing in the ether transformer upon the collector.

This ether wave transformer 103 is designed with a series of outer magnetizing circuits, which are charged by electricity from the collector, which energize series of inner cores to a greater or less magnetic density, the inner cores being insulated by an air gap from the outer magnetic circuit, and electric current being generated in the central coils, the current flowing through the various coils responding upon the reaction in each circuit, which reaction is least in coils 1 to 8 inclusive, **Figure 11A**, and greatest in coils 25 to 32 inclusive.

The formation of these central coils will now be defined with reference to **Figure 9**, **Figure10**, **Figure 11**, and **Figure 11A** of the drawings, **Figure 11** and **Figure 11A** being read together, the connections being shown in full lines at the top of the coil, and in dotted lines at the bottom.

With reference to the plan views of the enlarged segmental portions of the coil, in **Figure 9** and **Figure 10** of the drawings, respectively, it will be observed that these views show the windings and the vertical wires or cores, while the diagrammatic views **Figure 11** and **Figure 11A** omit these vertical wires, in order to better illustrate the controlling equalizing reactances, by means of which the electric output of the ether wave transformer is increased to the full load required.

All of the windings of the coil 103 are concentric with a central fibre core piece O, at the center of the ether transformer, around which the first series of vertical core wires 1' or pins, as seen in **Figure 9** and **Figure 10**, are arranged in close order, and around said wires or pins 1` the first winding 1 is made, beginning at the top surface of the fibre base 104 and winding the wire circuitously to the right, around these vertical wires or pins 1', building up the coil to the height of these wires or pins 1' (see **Figure 9A**).

Outside of the winding 1 is placed another row of vertical wires or pins 2', around which the coil winding 2 is built up from the fibre base 104, to the height of said wires or pins 1'. Then around said wire coil winding 2 is arranged a series of vertical wires 3', and around these vertical wires is made another coil winding 3, and thus continued in the same manner from the coil winding 1, to coil winding 32, outside of which winding is the air gap 32`. Against this winding 32 are positioned the angle or bridge plates 32^o, which are arranged at equal distances apart, in the direction of the circumference of the coil 103-, and are insulated from the coil winding 32-. These series of coil windings, which are the transformer windings, are wound to the right, as seen in **Figure 8A [Missing]**. In the air gap, arc located the magnetizing coils arranged with alternate north and south polarity, the air gap being divided in the circumference of the transformer by bridges, spaced equal distances apart, in which spaces are magnetic coils 109, insulated from the bridges, as seen in Figure 12.

The terminal of this magnetizing coil, extends downwardly in the air gap to the bottom and through the next bridge to the right and the coil wound to form a reverse south pole winding S^2, which is indicated by the character S^2, the wiring being continued to the right, and in the direction of the upper end of the coil through the next bridge, and another coil formed, indicated by the character N^3, the wiring being so c6ntinued to the right through the next bridge, and in succession between the bridges to a point about one-half the distance circumferentially of the ether transformer; from the first open space mentioned, at which point is seen a space marked "open" -- and from the bridge on the far side of this space, a new coil begins, starting from an upper portion of the bridge and forming a right hand coil and the coil next to the bridge reversed. The coils are then continued between the bridges, until the bridge is reached on the left hand side of the open space first mentioned.

Outside of the air gaps, the excitation coil winding of the ether transformer is placed, the first two coils 33 and 34, being heavy, or of a larger gauge than the preceding windings from 1 to 32.

The vertical core wires outside of the coil 33 are also of increased size, as seen in **Figure 9**. Continuing the winding of the excitation coils in a series of eight windings from 33 to 40 inclusive, it will be observed that the vertical core wires or pins between the respective windings from 37 to 40 are of a large capacity, several times larger in diameter than the pins between the windings from 1 to 32.

The current from the aerial plate 20+ of the collector is conducted through the terminal 101 leading from said plate to a position, as seen in **Figure 11A**, and is connected with the coil 39 of the excitation winding of the ether wave transformer. The conductor 102 leading from the collector plate 21- of the ether wave transformer, is connected with the outer coil 40 of the excitation winding of the ether wave transformer.

The coils of the excitation circuits are connected in series as follows: The outer coil 40 is connected by the conductor 40' with the coil 34, and the coil 39 through the conductor 39` with the coil 33. The coil 38 is connected by the conductor 38 with the conductor 34. The coil 37 is connected through the conductor 37' with the magnetic coil 33. The coil 36 is connected through the conductor 36' with the coil 33, and the coil 35 is connected by the conductor 35' with the coil windings 34, thereby connecting all of the excitation coil windings from the inner to the outer coil windings 33 to 40 inclusive.

One end of an insulated bus rod 41 is connected with coil 33 of the excitation circuits, and the other end extends above and is connected to coils 1 to 8. Bus rod 42 is connected to coil 34 and extends to the bottom of coils 1 to 8. In a like manner, bus rods 43 and 44, 45 and 46, 47 and 48, are connected to their respective groups of coils, as shown in **Figure11** and **Figure11A**.

Between coils 32 and 33 is provided a space for the poles the ether wave transformer, the said space in this case being separated into twenty-six divisions, although any even number of poles might be used. Each pole space is separated by non-magnetic bridges 32^{o}, two of the said spaces lying upon opposite sides of the transformer, and upon opposite sides of a line intersecting with the axis of said transformer, being marked "open". The other twenty-four pole spaces arc in this case divided into four groups of six each. The first space adjoining one of the spaces marked "open" contains an iron core wound with an excitation winding, as further herein illustrated, the excitation winding being wound to produce magnetic lines of force from north to south, and in the next space to the right there is a similar core wound to produce magnetic lines of force from south to north, and so on in succession, the sixth space having a coil marked S^6, or south-sixth it being premised that these coils are independent of, and insulated from, the bridges and located as shown in **Figure 12**, in which one of the bridges adjacent the space marked "open" is shown in detail, comprising a vertical non-magnetic web extending from the line of the top of the ether wave transformer to the insulated base 104 and provided with the flanges 106- and 107, both insulated from the respective coils 32 and 33 on opposite sides of the pole space.

The system of wiring involved in the aforesaid excitation winding in one completed circuit may be electrically defined as the magnetic field excitation and regulation circuit, which can be traced as follows: Beginning with bus coil 33, the bus rod 41 is shown connected to each of the eight terminal contacts marked by the characters P^1, P^2, P^3, P^4, P^5, P^6, P^7 and P^8, which are connected respectively, to each of the coils one to eight of the ether wave transformer, and the lower terminals of each of these coils are connected in reverse order to contacts marked N, from which points the circuit divides into two paths, one leading through field coils, and one to bus rod 42, which is connected at its outer end to the bus coil 44 from contacts marked P^1, P^2, P^3, P^4, P^5, P^6, P^7 and P^8, the group of connections 8^2 lead to terminals 8^6 the field excitation windings successively on fields S^6, N^5, S^4, N^3, S^2 and N^1, from which the winding terminates, and is brought out at the bottom and connected at 8^4 to a series of eight wires, the group being indicated by the character 8^3 and shown in dotted lines, these eight wires terminated at contacts marked N, from which points the circuit is completed through bus rod 42, to bus coil 34, specifically the insulated field coils to the right of the space marked "open", and near the bus rod 42, and are connected with the terminal of an electric conducting wire 8^5 (see **Figure 12**), forming’ in said space a right hand coil N-1, from which the end of tile wire emerges from the lower portion of the coil, and is extended through an insulated opening 111, in the web of the bridge supporting plate 110, --thence extended upwardly within the next space of air gap to the like coil in said space, and through opening at the upper end of said plate, thence to opening in the opposite plate, forming a left hand coil S-2, and so continued downwardly, the winding being to the left, changing the polarity of the coil. At the lower end of plate 110 the end of the wire emerges, and is then extended through an insulated opening in the next bridge supporting like coils, the winding of the coil in the next space being similar in which the windings are wound to the right, and in the next space to the left, and so continued, these coils being designated in **Figure 11A** as N^1 (north 1), the next S^1 (south 1). the next N^2, the character numerals 1 to 6 indicating the spaces of the air gap, the last space in the series of six coils being a south pole winding, indicated by reference numerals S-6. In this latter magnetic coil, the wire is extended upwardly as indicated at 8^6, and with said wire is connected the terminal contacts of the group of conducting wires 8^2 leading from the terminal contacts on the inner end of the bus rod 41- hence completing the winding of the divisional six spaces of the twenty four, and from this connection 8^6 the wire is extended through an insulated opening into the first divided space of the next series of six spaces of the air gap, where the end of the wire is given a right hand, winding, and the magnetic coils thence continued as before described.

The connections upon the other portions of the coil are as follows:

Upon the lower side of the generator coil, and upon the same radius as the bus rod 41, is a bus rod 43, which is connected at its outer end with excitation coil 34 of the transformer and its inner end with the respective coils 9-10-11-12-13-14-15 and 16 of the ether transformer. With this bus rod at the points of connection of said rod with the aforesaid coil windings, are connected the terminal contacts of a group N^o, of wires 8^7, which are connected with the end of the wire in the space past which the bus rod 43 extends, and a north pole magnetic winding formed in said space.

The next bus rod 44, above the last space of the divided air gap of the next series of six spaces, is connected with the pole of the magnetic coil winding 33 of the transformer, at one end, and at the other end with the poles of the coils 9 to 16 inclusive. With the bus rod at the points of connection with the respective coils are connected the terminal contacts P^{16} of a series or group of conducting wires 8^5 from 9 to 16 inclusive the outer numerals being connected with the south pole windings in the space of the air gaps below said bus rod.

With the group of terminal contacts N^{10}, on the bus rod 43, are connected the upper ends of a group of conducting wires 8^8, the upper ends of the wires being extended upwardly, and connected in an inverse order with the group of contacts P^{16}. The next bus rod or wire is positioned upon the other half of the ether transformer, and upon the lower side, and indicated by the reference numeral 45. This bus rod is connected at its outer end with the pole windings 34, and at its inner end with the coil windings 17 to 24 inclusive, and with which windings are connected the terminal contacts 20 of a group of eight wires leading to and connected with the north pole magnet winding wire in the space past which the bus rod extends.

The next bus rod 46 is above the top of the transformer, and is connected with the pole of the excitation coil winding 33 of the magnetic circuit of . the transformer, and at its inner end with the series of coils 17 to 24 inclusive, with which bus rod are connected the series of terminal, contacts P^{24} of the group of eight wires P^{25} leading to and connected with the south pole windings in the sixth space of the divided air gap over which the bus rod 46 extends.

With the terminal contacts N^{20} are connected the lower ends of the series of wires N^{21}, the other, ends being extended upwardly and connected in inverse order with the terminal contacts 24.

The next bus rod 47 is extended beneath the coils of the transformer, the outer end being connected with the pole of the coil 34, and its inner end connected with the eight coil windings 25 to 32 inclusive.

With the bus rod 47, above these coil windings, are connected the terminal contacts of a group of eight wires 22, the other ends being connected with the coil winding in the first space of the air gap, past which the bus rod 47 extends.

The next bus rod 48 extends upon the top of the transformer, and extends over the sixth space of the air gap. In the fourth quarter of the circumference of the transformer, and is connected at its outer end with the pole or the coil 33 of the magnetic circuits, and at its inner ends, with the poles of the eight to coils 25 to 32 inclusive.

With the said bus rod are connected the terminal contacts of a series or group of eight wires P^{26} connected with the south pole coil winding in the sixth space aforesaid, and with the contact terminals of the group of wires N^{22}, are connected the ends of a group of eight wires P^{27}, their upper ends being connected in reverse order with the terminal contacts of the wires P^{26} on the respective coils 32 to 25 respectively.

The description being now completed of the magnetic excitation coil windings, and of the magnetic field coil wire regulation, which latter it will be observed are arranged for the excitation of any portion of the ether transformer, from the magnetic circuit to the coil windings 1 to 32 from the consumption of the current obtaining the full self induction action or current generating capacity of the transformer, the magnetic circuits being traced in like manner as first described.

The ether wave collector, as arranged in conjunction with the ether wave transformer, before described, and for practical operation, is as seen in **Figure 1**, the lower plate 21 of the collector resting upon insulating cross bars 113-116 which extend across the top of the transformer 103. In this position of the collector, it will be seen that the current conducting wires are in the form of bars, the upper end of the bar 118 being connected with the plate of the collector, and the lower end extended downwardly and insulated from plate 21 and bent inwardly and thence downwardly into contact with the excitation winding of the outer excitation coil 40 of the magnetic circuits.

The feed wires for current distribution are connected with the coils of the magnetic excitation circuit, like terminal of one wire indicated by the character 117, being connected with the pole of the coil 33 of the transformer 103, opposite the space of the divided air gap marked "open" and first alluded to in the description of the first series of six spaces of the air gap of the transformer.

The other wire 118 has its inner terminal connected with the coil winding 34 of the magnetic field upon the reverse portion of the transformer.

The outer portions of these feed wires 117 and 118 connect with a double pole switch 120, which makes contact with the conducting wires 121-122 of the rheostat controller 124.

With the rheostat are connected the inner terminals of the conducting wires 125 and 126, the outer terminals being connected in parallel with the lamp circuit upon the socket board 127, in, which are shown the incandescent lamps 128 in series, in the incandescent circuit.

It is obvious that the outgoing feed wires may be connected with the fields of a motor and electric energy transmitted at high and low velocity as the load of the motor increases, or vice versa, as the increase in the number of incandescent lamps are increased, to excite the magnetic circuits of the transformer, the efficiency of which will now be described in connection with the collector of ether wave medium.

The electromotive force of the current from the ether wave aerial collector flows or is conducted by the conductors 101 and 102, whose terminals are connected with the aerial plates 20+, 21-, respectively, and also with the coil windings 39 and 40, respectively, of the ether wave transformer. The current flowing in the magnetic circuit of the coils energizes conductors 39', 40', magnetizing coil windings 33 and 34 respectively, and these coils 33 and 34 energize the magnetic coils 37 and 38, through the conductors 37', 38' respectively, and the coils 35 and. 36 are energized through the conductors 35', 36' respectively, from the coils 33 and 35 respectively, and the whole magnetic circuit from 33 to 40 are energized. The current then flows through the bus rods to the coil near the center of the transformer which has the least resistance, which as indicated the first coil, outward from the insulated core piece O.

The current generated and flowing through the bus rod is generating an electromagnetic force in the magnetic circuit.

The coil energized has a return through the bus rod 43- to the magnetic circuit to its bus coil 34, and the electromotive lines of force are impeded by changes in the lines of force which cause fluctuations in the change of polarity.

The double pole switch 120 being thrown to bring into contact the outgoing feed wire terminals of the feed wires 117-118, with the conducting wires 121-122 of the rheostatic controller 124, the current of the required force is transmitted by the conductors 125-126 to the series of incandescent lamps 128.

The transformer now in use by myself for service lighting is now connected with a lighting circuit now in operation.

The electromotive force of the transformer being increased, by the amount of load, increases the flow of the current through the first magnetizing coil of the transformer from 1 to 8, setting up new lines of electromotive force, the potentials of which in moving toward the lines of the least resistance, meet a change in lines of force through the reversed group of wires 8^4, at the same time generating a larger magnetic electromotive force in a reverse movement by the path of the bus rod 41, which being met by an increase of the lines of magnetic force from the magnetic coils, acts to control the movement of the current, while generating in the collision of these lines of force a higher electromotive force, involving the magnetic coils in the spaces from 1 to 6 inclusive, of the air gap, the current now flowing through the magnetic coil during its flow from the group of conductors 8^3, to the conductors in the space S^6 in the first series of six spaces of the air gap, the current flowing through the magnetic wiring by the conductor 8^5, in the space marked N^1, thence through the magnetic winding S^2 in the next space, thence through the magnetic windings N^2 in the next space, thence through to magnetic winding S^4 in the next space, thence through the magnetic winding N^5 in the next space, thence through the magnetic windings N^6 in the next space, at which point, the current whose fluctuations have been regulated in rapid changes of polarity, with increased electromotive force, flows with an inductive force through the bus rod to energize the series of coils from 1 to 8, it being observed that in my transformer the electromotive force is being from magnetizing coil 1 to 32 respectively until an increased load is thrown on the transformer, increasing the magnetic lines of force of the coils of the transformer, when the inductive force is set up in the magnetic circuits through conductors 37', 35', involving a generation of current which finds its path through bus rod 44, and bringing into circuit the next 8' coils of the transformer where the lines of force in the correction of the poles of the group of wires 8^1 are subjected to a change of polarization and depolarization through one or more of the wires 8^8, setting up additional electromotive force, its fluctuations being made constant through the magnetic field coils in the spaces of the air gap from 1 to 6 in the next quarter division of the transformer, and as the load further increases so as to involve the magnetic circuits 33 and 35, the flow of the current is inducted through the conductors 35^x, 36', through the bus rod 46, taking the electromagnetic force from the excitation from all the coils of the transformer, whose potentials follow the group of conductors which lead to the next series of coil windings 16 to 24, flowing through the reversely connected group of wires N^{21}, and is then conducted through the series of magnetic coils in the nex t series of coils respectively.

As the load increases, the Principal magnetic coils shown in heavy lines in **Figure 11** and **Figure 11A** in the last distribution of current, flows from the dense coil 32, energizing bus rod 48, and also energizing the series of eight coils of the transformer from 1 to 32 inclusive, the current flowing through the reversely connected conductors P^{27} through magnetizing field coils, cutting the line of force and creating an electromotive force the current flowing through the fourth division of the six spaces of the air gap, and the magnetizing field coils in said series, in which the fluctuations of the current are made constant and the full distribution of the current is now attained from each portion of the transformer, in which portions, while the electromotive force is increased to meet the demands of the load, a constant regulation is being effected in the excitation coils and through the magnetizing field coils, impeding the lines of least resistance which are afforded a compensating resistance in proportion to the load cut in and out through the rheostatic controller, hence, as the electromagnetic force of the transformer is increased to supply the electromotive force required, the accumulation of the ether waves in the collector produces an electromotive force of undiminished quantity, this result being a new discovery of far reaching benefit to mankind, involving as it does the inceptive potency of electric energy for all, purposes, evolved from the general ether wave field of electric medium by me.

Having fully described my invention, what I now claim as new and desire to secure by Letters Patent, is:

1. The production and generation of an electromotive force from the accumulation of the ether waves of an unknown potential, from the general field of ether wave electric medium.

2. The production and generation of an electromotive force, from the accumulation of the potentials of ether waves of electric medium, and their polarization into electromotive force constant.

3. A source of electromotive force, comprising an inductive polarization and depolarization of the pulsating waves of ether, from the ether wave potential of the ether wave electric medium.

4. The production and generation of an electromotive force, consisting of the accumulation of the ether waves of the general electric ether wave medium, and changing their potentials in the paths of broken circuits of opposite polarity, and polarizing and depolarizing the wave potentials and subjecting the energized potentials to a transmission through magnetic circuits.

5. A source of electric motive force, comprising the inductive ether wave potentials of the ether wave medium, whose potentials are changed through resistances in their paths, and then polarized and depolarized in transmission.

6. The method described of producing an electromotive force, consisting in collecting the ether waves from the general field of electric medium, their potentials changing within broken circuits, then through polarized resistances.

7. The method described of producing an electromotive force, consisting in collecting the ether waves from the general field of electric medium, changing their potentials, transmitting them within broken circuits, polarizing and depolarizing the potentials and through polarized resistances in magnetic circuits.

8. The method herein described of producing an electromotive force, consisting in collecting and accumulating the ether waves from the general field of electric ether wave medium, changing their potentials and transmitting these potentials within broken circuits, polarizing and depolarizing these potentials in a transmission through polarized resistances in magnetic circuits of reversing polarities.

9. The method herein described of producing an electromotive force constant,m consisting in collecting and accumulating the ether waves from the general field of electric ether wave medium, changing their potentials and transmitting these potentials within paths of broken circuits, changing their potentials and polarizing and depolarizing these potentials and transmitting them through polarized resistances, thence through magnetic circuits in which circuits the polarities are changed according to the electromotive force.

10. The method and apparatus herein described, for collecting from the general ether field, of electric medium, of electric ether waves or ether in an accumulative, distributable, measurable, electromotive force.

11. The method. and apparatus herein described, for collecting from the general ether field of electric medium of the wave potentials, and breaking up the lines of force of these potentials to produce an electromotive force.

12. The method and apparatus herein described for collecting and accumulating from the general field of electric medium of ether waves of unknown polarity and converting these waves into lines of electromotive force of constant polarity.

13. The method and apparatus herein described for collecting and accumulating from the general field of electric medium, of ether waves of unknown polarity from aerials of opposite polarity, transmitting these waves through broken conductors in groups of broken circuits in electrical contact with the aerials, then through polarized resistances in electrical contact with the conductors in the broken circuits.

14. The method and apparatus herein described for collecting and accumulating from the general ether field of electric medium of the ether waves, consisting in establishing a conductivity of the wave medium between aerial conductors in parallel, and conducting the ether wave from conductors through groups of broken circuits in electric connection with the terminals of the aerials, and interposing polarized resistances between the terminals of the aerial conductors.

15. The method and apparatus herein described for collecting and accumulating from the general ether field of electric medium of unknown polarity, of ether waves of electromotive force, consisting in conducting the lines of force of the ether electric waves through aerials and within groups of broken circuits, and breaking up the lines of force, then reversing the polarity of these potentials through the medium of polarized resistances.

16. The method and apparatus herein described for collecting and accumulating from the general ether field of electric medium, of an amperage of electromotive force, and increasing its lines of force in a transformer of magnetic lines of force.

17. A collector of ether electric waves, consisting of aerial conductors, and a group or groups of wave polarizing and depolarizing broken circuits leading therefrom, and polarized resistances so related to the broken circuits as to break up the potentials of the ether medium.

18. A collector of ether electric waves, consisting of aerial conductors, and a group or groups of wave polarizing and depolarizing broken circuits in wave transmitting connection with the terminals of the aerial conductors, and polarized resistances in the path of the electric medium at the terminals of the aerials.

19. A collector of the ether electric waves, consisting of aerial conductors, and terminal contacts and broken wave group or groups of conductors polarizing and depolarizing connected with the terminal contacts.

20. A collector of ether electric waves, consisting of aerial conductors of the potentials of the electric waves, and opposing group or groups of wave polarizing and depolarizing broken

conductors, in wave transmitting connection with the terminals of the aerial conductors, and polarized resistances connecting the group or groups of broken circuits and insulated therefrom.

21. A collector and accumulator of the ether electric waves, consisting of wave inductive aerial plates, and terminal contacts in opposite wave transmitting positions.

22. A collector and accumulator of the ether electric waves, consisting of wave inductive aerial plates, each plate having a series of terminal contacts in registering positions, and polarizing and depolarizing conductors in broken circuits carried by the terminal contacts on each plate, and wave transmitting polarized resistances connecting the registering contacts.

23. A collector and accumulator of the ether electric waves, consisting of separate wave inductive aerial plates, and a series of terminal contacts on each plate in registering positions to each other respectively, means for insulating one plate from the other, and a group or groups of conductors in broken circuits on each plate, in wave transmitting connection with the terminal contacts, and polarized resistances connecting the contact on the other plate.

24. A collector and accumulator of the ether electric waves, consisting of separate wave inductive aerial plates, and a series of terminal contacts on each plate, an insulating member between the said plates provided with openings registering with and admitting said terminal contacts, polarized resistance coils in said openings connected with the respective contacts on the separate plates, and wave polarizing group or groups of broken conductors on said terminal contacts.

25. An apparatus for the collecting, accumulating and accreting, the ether electric wave energy, comprising inductors of the ether electric waves, circuit breaking polarizers and depolarizers of the electric waves, potentials changing elements connecting the broken circuits, and magnetic circuits, and polarizing and depolarizing current transmitters in the magnetic circuits.

26. A collector and accumulator of the ether electric waves, and a transformer of increased energy of electromotive force, from the amperage of wave energy transmitted from the accumulator.

27. An ether wave transformer of electromotive force, comprising magnetic circuits, and polarizing and depolarizing circuits controlling the magnetic circuits.

28. An ether wave transformer of electromotive force, and magnetic circuits of increased activity without the main body, and an air gap between, and polarizing and depolarizing circuits connecting the poles of the magnetic circuits of the main body, with the poles of the magnetic circuits of the outer body, and electrically controlled thereby.

29. A collector and accumulator of the ether electric waves, and magnetic circuits energized by the polarized and depolarized ether waves from the accumulator.

30. An ether wave transformer of electromotive force, comprising an internal body of magnetic circuits, and an external body of magnetic circuits of increased magnetic intensity to that of the internal body, and an air gap between, conductors connecting the magnetic poles of the terminal body with the magnetic poles of the outer body, and groups of polarizing and depolarizing circuits connecting the conductors of these poles with each other, and polarized, resistances in the air gap connected with the polarizing and depolarizing circuits.

31. An ether wave transformer of electromotive force, comprising a series of internal magnetic circuits, and a series of external magnetic circuits, and an air gap between, conductors connecting the poles of the external magnetic circuits with the poles of the internal magnetic circuits in progressive degrees of electric induction, and polarizing and depolarizing circuits connected with the terminal contacts of the conductors with the poles of the magnetic internal circuits with each other in reverse order, and conductors leading from said poles to the air gap and polarized resistances connected with the polarizing and depolarizing circuits within the air gap.

32. An ether wave transformer of electromotive force, comprising an internal body of magnetic circuits, and an external body of increased magnetic intensity, to the internal body, and having an air gap between, insulated means connecting the internal and external bodies of magnetic circuits, and conductors connecting the poles of the internal and external magnetic circuits in progressive degrees of electric induction, and polarizing and depolarizing circuits connecting the conductors from the poles of the magnetic circuits in series, and series of polarizing and depolarizing circuits connecting said series of conductors in reverse order, and polarized resistance coils in the air gap insulated from the magnetic circuits and connecting electrically the series of reversed polarizing and depolarizing circuit from the magnetic circuits.

33. The herein described method of producing electromotive force between the poles of a transmission resistance coil.

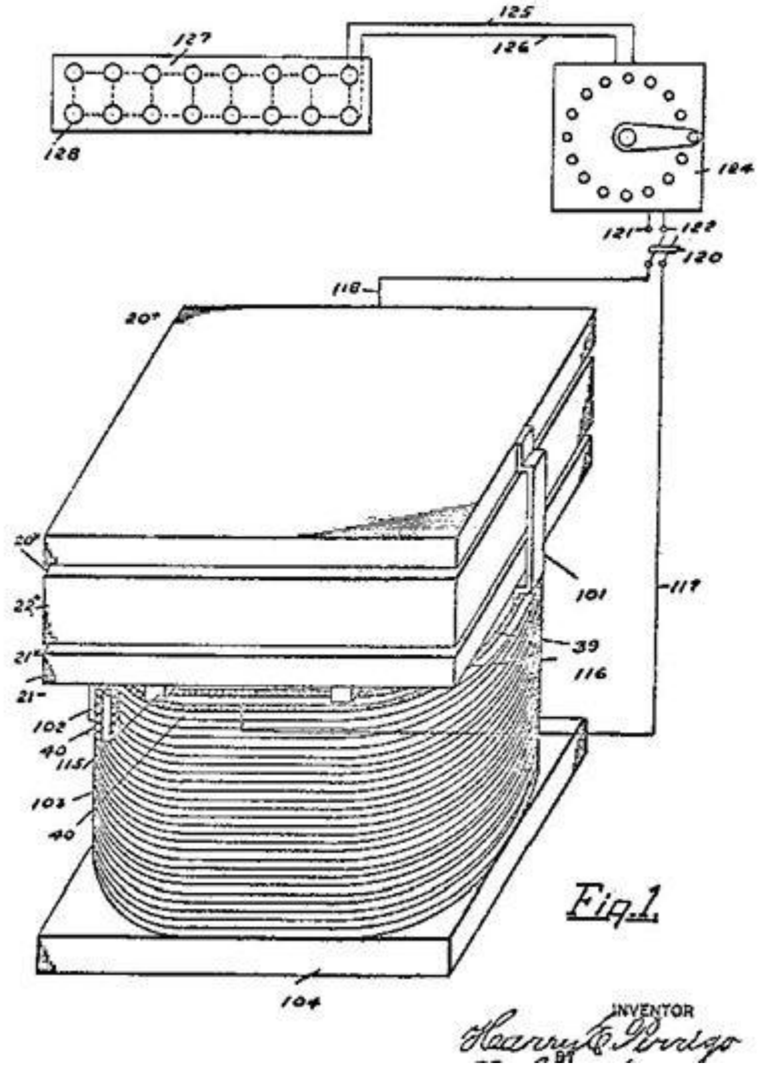
34. The herein described method of producing electromotive force from the ether waves of electric medium between the lines of force passing through the poles of a transmission resistance coil.

35. The herein described method of producing electromotive force from the aerials of conductors of ether wave electric medium, by changing their potentials during the transmission of the lines of force through wave transmission resistances.

36. The herein described method of producing electromotive force conducted through the aerials of the ether wave electric medium consisting in changing their potentials through broken conductors in contact with the aerials and during transmission of the lines of force through wave transmission resistance coils.

In witness whereof I hereunto affix my signature:
Harry E. Perrigo

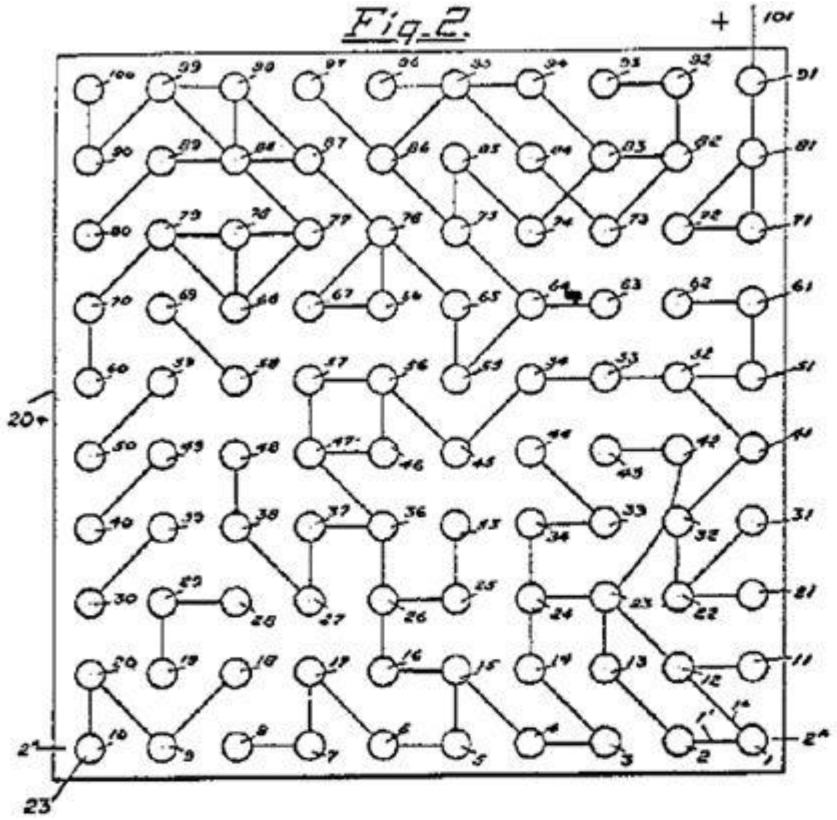
Figure 1: Isometric view showing the electric wave interceptor or collector mounted upon the electric transformer, also showing the current distributing connecting wires leading to a rheostat and to a series of incandescent lighting lamps.



CLICK HERE FOR ENLARGEMENT

Figure 2: Inverted plan view of the top or positive plate of the wave interceptor, or collector, showing the series of aerial terminals or contacts and the broken or dead end or open circuit (hereinafter in most cases called "broken circuit") connections with the contacts.

Fig. 2.



[CLICK HERE FOR ENLARGEMENT]

Figure 2A: Transverse sectional view taken through the collector aerial plate, and the terminal contacts taken on line 2A--2A of Figure 2.

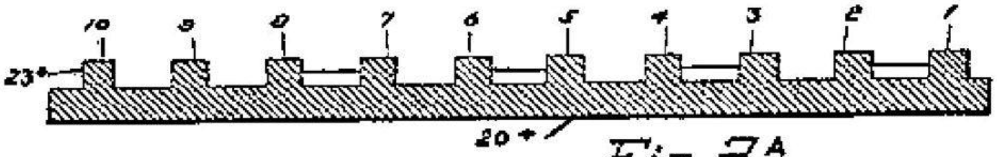
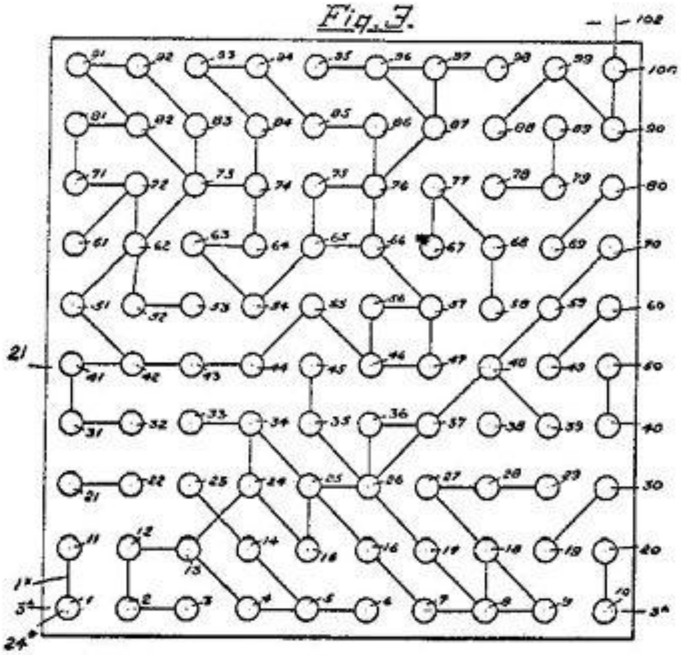


Fig. 2A

Figure 3: Plan view of the lower aerial plate of the wave collector, showing the aerial terminal contacts, and the broken circuit connections.

Fig. 3.



[CLICK HERE FOR ENLARGEMENT]

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 3A:** Transverse sectional view of the lower collector plate and the terminal contacts taken on the line 3A--3A of Figure 3.

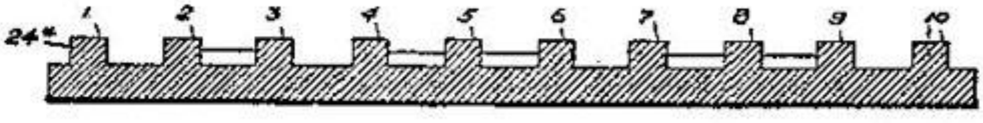
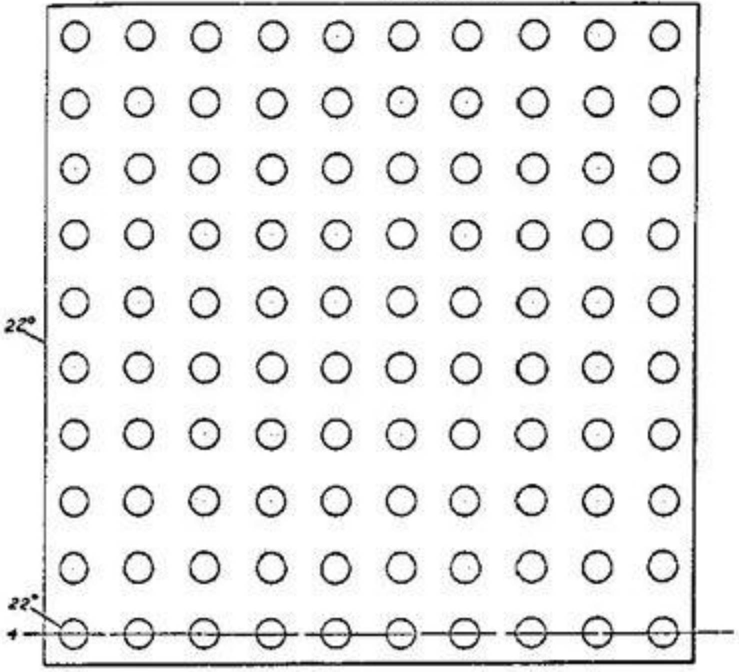


Fig. 3A.

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 4:** Perforated member made of insulating material for containing the resistance coils between the, upper and lower aerial plates, showing the top member or cap of each resistance coil of the series.

Fig. 4.

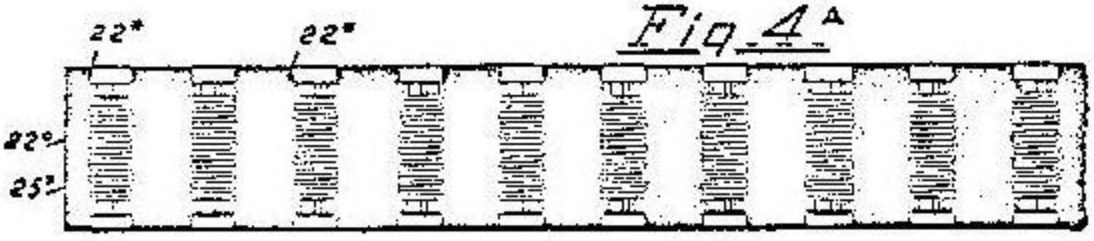


mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 4A:** Transverse sectional view of the insulating member shown in Figure 4, taken through the series or perforations lowest in position in the member, on the line 4--4 of Figure 4, and shows the resistance coils in full lines.

Fig. 4A



mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 5:** Enlarged detail side view of one of the resistance coils which are located in the insulated member shown in Figure 4.

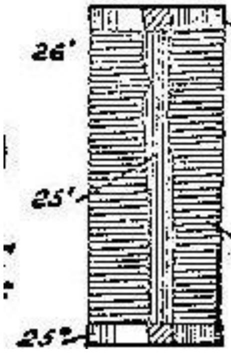


Fig. 5.

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 6:** End view of one of the resistance coils with the cap removed.

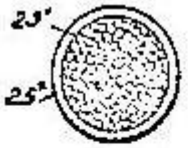
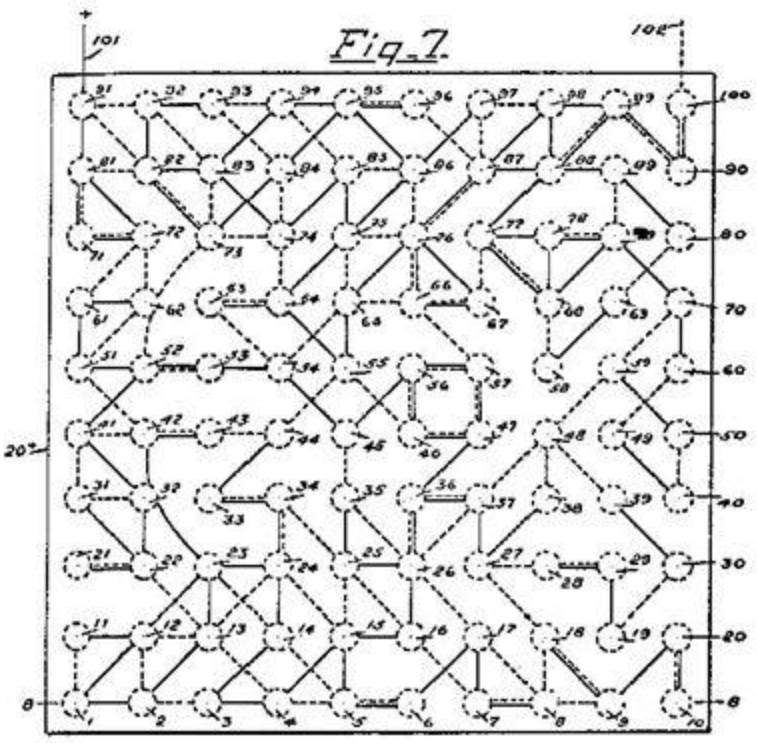


Fig. 6.

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 7:** Diagrammatic view of the electrical connections between the resistance coils mounted between upper and lower aerial plates.

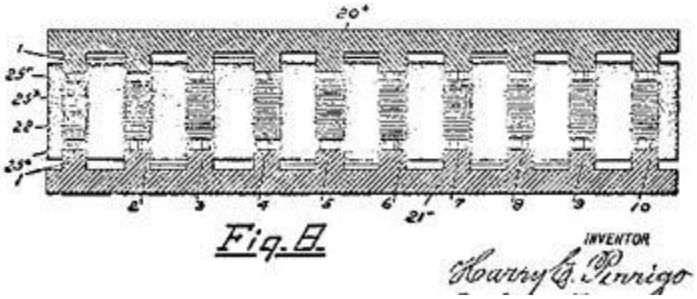


CLICK HERE FOR ENLARGEMENT

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

mso-margin-bottom-alt:auto;margin-left:1.0in">

Figure 8: Transverse vertical sectional view of the complete ether wave collector, taken on the line 8--8 in Figure 7.



mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

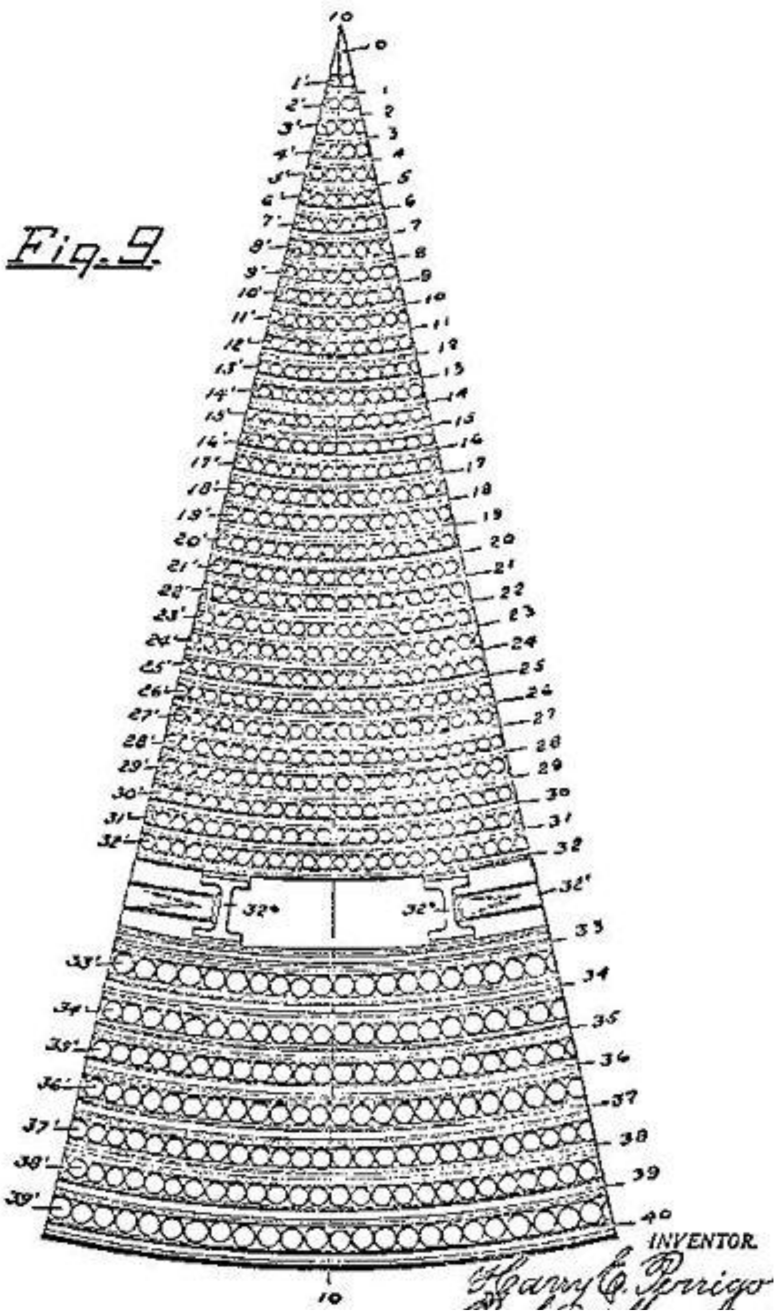
Figure 8A: [MISSING]

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 9:** Segmental plan view of the other wave transformer, showing the coil windings.

Fig. 9



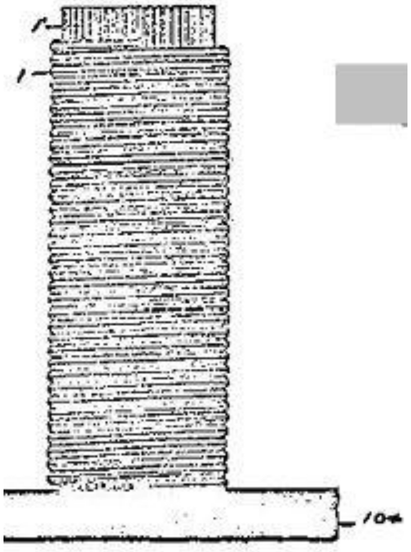
CLICK HERE FOR ENLARGEMENT

auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 9A:** One of the field coils in end elevation.

Fig. 9A

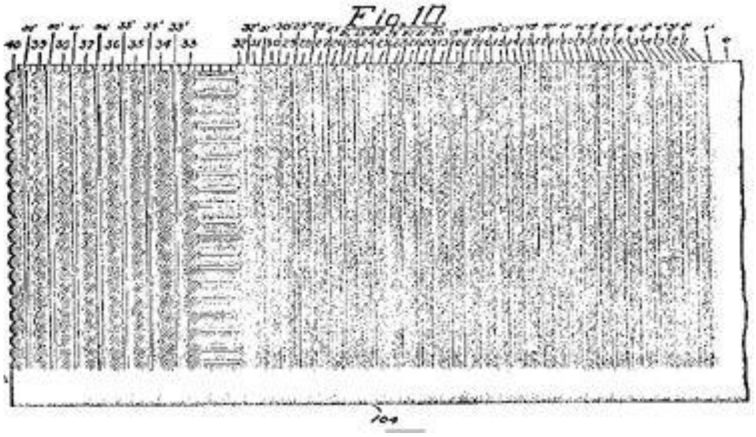


mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 10:** Vertical sectional view of the ether wave transformer and the coil windings taken on the line 10--10 of Figure 9.

Fig. 10

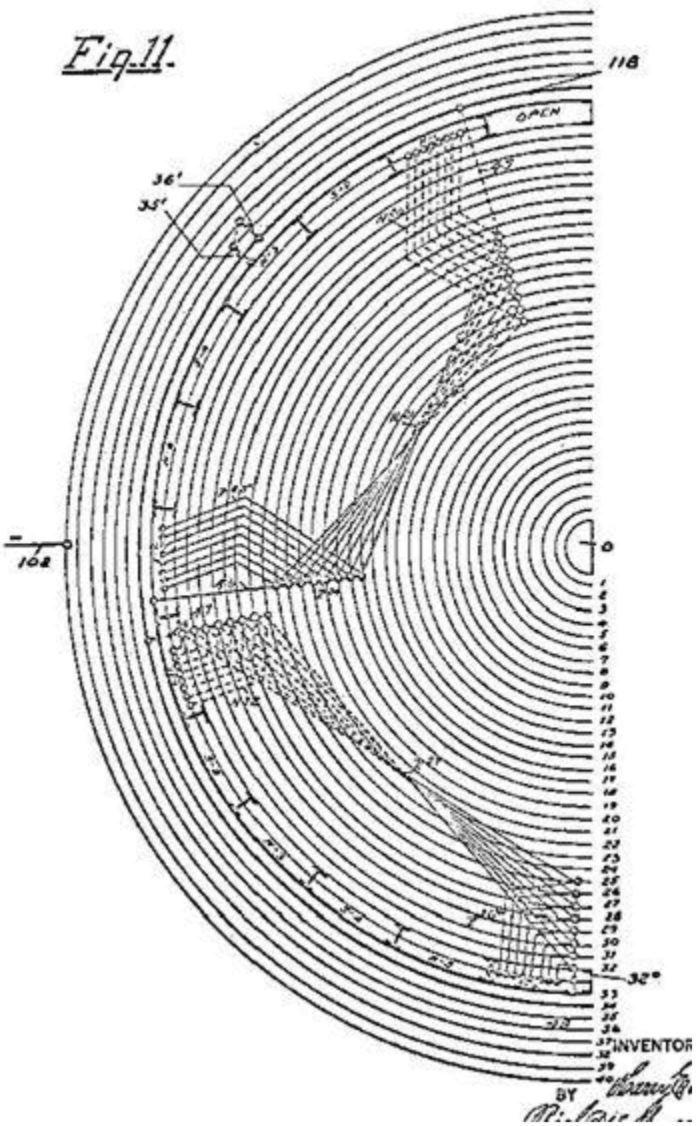


CLICK HERE FOR ENLARGEMENT

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

---

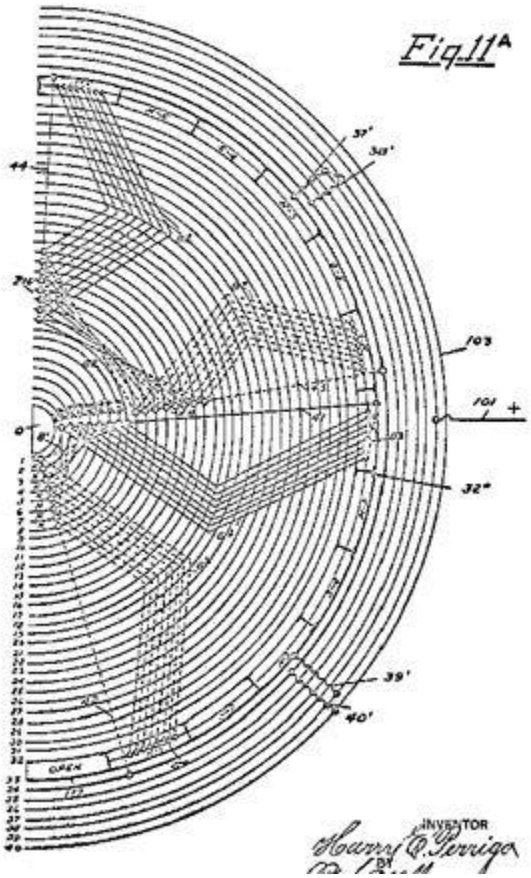
mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 11:**Diagrammatic views of the two halves of the complete coil windings of the transformer, show- the coil windings, the cores of the windings not being shown, these halves being in separate views to facilitate showing the detail to a larger scale.



CLICK HERE FOR ENLARGEMENT

mso-margin-bottom-alt:auto;margin-left:.5in;text-align:center">

mso-margin-bottom-alt:auto;margin-left:1.0in">**Figure 11A:** Diagrammatic views of the two halves of the complete coil windings of the transformer, show- the coil windings, the cores of the windings not being shown, these halves being in separate views to facilitate showing the detail to a larger scale.



CLICK HERE FOR ENLARGEMENT

Figure 12: Detail side view of the insulated bridges in the air gap of the transformer, and the reversed field windings, as they appear between the bridges, except where marked "

CLICK HERE FOR ENLARGEMENT

Daniel POMERLEAU

Free Energy Coils

http://www.overunity.com [An excellent, must-see website]

Pomerleau Photo Gallery

OverUnity.com Forum Excerpts

Bruce A. Perreault
« on: July 21, 2005, 06:42:28 PM »

Daniel Pomerlou Demonstrates Free-Energy

There is a guy from Canada who has demonstrated free-energy using only coils of wires. I have posted photos of these devices in the file section on my Free Energy Devices Yahoo Group if anyone wants to see them... **http://groups.yahoo.com/group/freenergy/**

joe
Re: Daniel Pomerlou demonstrates free-energy
« Reply #3 on: July 22, 2005, 06:10:10 PM »
Hi, I have been in contact with Daniel Pomerleau twice and i have seen what he was doing (really amazing). The first time was in 1992 and during 3 hours i saw some unbeilievable things like open up a light bulb with only "one wire" and also running a 5 electric horse power motor connected only by 2 wires that he was holding in his hand.
I had a long talk with him and he was telling me that he does not know where his power come

from. He told me that he stort to do that when he was a child.
He does demonstrations once in a while in the Montreal area.

joe
« Reply #7 on: July 27, 2005, 06:45:13 PM »
Stefan,
The pictures that Bruce Perrault posted about Daniel Pomerleau's devices are real. It is not a "scam" because as i said in my last post, i was there in 1992 and i was there at is last demonstration 4 weeks ago. That guy is from Montreal area and is doing this since he is a child. He told me that what he is doing come "naturally". He also showed me how to build one of his device but i can't make it work. He did build a device with only a few wires in front of many people in about 5 minutes that can run a 5 horse power motor. And also like i said in my previous post he can power a 100 watts bulb with only "1 wire" (really amazing).
This is it. An again it is not a scam.
Regards, Joe

joe
« Reply #10 on: July 28, 2005, 01:14:27 PM »
Hi Stefan and all,
I will go a little further with his history. Daniel, because of his unusual talent working with energy were asked for a demonstration of his power by "some people of the goverment" he has been kept in captivity for (i am not sure) over 2 months. They have conducted tests on him (really scarring things i have been told) and after that nobody heard of him for a long while. That was in the years 70's or 80's . Like i said he stort to do demonstration by 1992 and at every demonstration he was protected by people he could trust. Now today, when he decided to do a demo, nobody knows a week before because even today "they are on his feet all the time and they don't want him to show his devices and especially to show people how to tap free energy. As you all know " the black power" is still really present and they want us to use their oil instead of clean energy.
And yes he has filmed his devices in mouvement but he has not released it yet.
Stefan, about the diagrams, there are no diagrams. The only thing you can see on the plexiglass is a couple feet of wires may be 26 to 30 gauge rolled around a little clear plastic spool and a little switch and some others copper bolts to hold the spools. The plexiglass he is using for every demos are about 1 foot square The beginning of the wires are left in air and the other and are attached to the bulb or the motor or the little race car toy that he use for his demos that is about it. That guy does i tell you again really unuseal things. I know it is hard to believe but for example when he is demontrate free energy on certains machine like bulbs, motors. ect. he always use plexiglass so you can not doubt it. And you can take the plexiglass and work with it. Last time they were electric engineers and electronic specialists at the demo and i can tell you they were pulling their hairs!!!!
Imagine open up a light bulb with only one wire! So, as he said to me if you want to built these devices you have to have "faith" and if you think to much with your head it will never work. He also said that you have to feel the energy deep inside. As soon as you know how to keep it inside then you are on the good track. One engineers try to start a motor by touching some wires on the plexiglass devices like Daniel is doing and could not do it and Daniel said if you could think with your heart then the motor would start.

So i don't know when the next demo will be hold. He does a few each year in the Montreal area.
Regards Joe

joe
« Reply #14 on: August 04, 2005, 03:06:15 PM »
Here's another post from Keelynet on Pormerleau's devices:
http://www.escribe.com/science/keelynet/m16658.html

nikola_tesla
« Reply #18 on: August 16, 2005, 11:50:10 PM »
Hello All, This guy Daniel is for REAL. I have seen it with my own 2 eyes.
His feats were so amazing that someone asked him during question period weather or not he was an alien.
Also 1/2 the room was filled by people who worked with or had degrees in electricity so he chose the worst possible audience for trickery. Also he passed his modules around and everybody could test things with their own hands. The demonstration lasted over 4 hours and it was non stop amazement for all.
He asked people to bring in electrical appliances before the meeting. Some people brought it radios and other small appliances and he powered all of them with his module. Now before this part someone in class that was impressed went out next door and bought a brand new 120 volt electric saw. Daniel plugged it in to his module and boom rrrrrrrrzzzzzzzzzzzzzzzzzzzzzzzzzz.
At the end of the four hours the group was in a state of trance ... sort of like a religious experience and we literally broke out into the entire group singing. Daniel passed around his electric utility bill and it showed the minimum payment possible for the period. Believe it or not you are still charged monthly minimum connection fees. He used the device to power his entire apartment. During the famous winter ice storm everyone in his block apartment building was freezing and he was enjoying life as if nothing happened in his apartment. He also stated that he was working on an electric vehicle to be powered entirely by his device and he may demonstrate this at his next meeting.
Understandably Daniel is paranoic ... he was actually locked up for about 13 years in a mental institution where he was exposed to electric shock treatments and other cruel treatments to cure him of his " disease ".

nikola_tesla
« Reply #21 on: August 17, 2005, 02:29:56 AM »
Quote from: hartiberlin on August 17, 2005, 01:44:41 AM
Did the device still produce output, when you had it in your hands ?
yes
What did it power ? a lamp ?
we could turn the small light bulbs or propellers on and off ... he also showed normal boom box radios (not crystal radios) working without batteries he demonstrated a small electric car working with no batteries that he let roll across the room

« Reply #23 on: August 17, 2005, 02:46:59 AM »
@nikola_tesla
When did you see it ? During the last week ?

months ago ... I know someone with a electrical degree that saw him about 10 years ago and same amazement
Did he say, if these wires were normal copper wires ?
yes
Did it only work, when he was present ?
NO ... if anyone took the module it would work forever to power anything
Maybe some batteries were hidden in the small motors ?
the person I went with brought a volt meter and was in front of the class taking measurements as he saw fit to try to disprove what we were all seeing
Could you connect your own loads without his load ?
as this would be the only source, where he could have hidden his batteries, righ? ? (if it would be scam...)
Forget scam ... I couldn't sleep well for weeks after I witnessed this ... this is how I explain it to myself
he is somehow able to see or feel electrical forces in the atmosphere and build his modules to tap into it ... it is probably like a dog can hear sounds humans can't that sort of thing ... the speaker who would speak for Daniel during the demonstration said that Daniel is constantly amazed that we can not duplicate what he can do without effort. The presenter mentioned that he believes that the government sets up fake institutions to help autistic or gifted people like Daniel only to make them disappear if they believe they can duplicate what Daniel can do.

nikola_tesla
« Reply #27 on: August 17, 2005, 10:58:22 AM »
Like the most famous person on earth once said " Blessed are those who believe without seeing ".
The presenter has said that if you have the plans to the device to " kick start it " you need to use your faith.
So Daniel seems to be able to feel or see the energy/electric fields and then to somehow use his will to unleash the power flow. Once it has been kick started it works forever after that. the device can power anything with 110 volts and 75 amperes OR 220 volts and 75 amperes if I remember correctly.
In one demonstration he lit a 200 watt bulb with it and then asked if anyone was a smoker and to come up in front of the class with a cigarette ... he asked the smoker to lit up the cigarette by putting it between the end of the light bulb and his connector and it produced the fire for his cigarette.

gast
« Reply #29 on: August 17, 2005, 11:53:15 AM »
Quote from: nikola_tesla on August 17, 2005, 10:58:22 AM
the device can power anything with 110 volts and 75 amperes OR 220 volts and 75 amperes if I remember correctly.
What kind of wires he used in his demonstrations for such powerfull energy amounts?
The small wires shown in the uploaded pictures should glow if 8 KW (110 Volt, 75 Amp) flow through them.

joe
« Reply #30 on: August 17, 2005, 12:28:19 PM »
Hi guys, You have to understand that Daniel uses Wires for demonstrations but as he told us, he does not need any wires to conduct electricity to his devices. Simply by aiming his mind to whatever he wants to play with or to light a lamp or to run a motor he can do it. He can make a little car run just by his thought. I have seen it! Not bad for an autistic!
Quote from: nikola_tesla on August 17, 2005, 10:58:22 AM
the device can power anything with 110 volts and 75 amperes OR 220 volts and 75 amperes if I remember correctly.
What kind of wires he used in his demonstrations for such powerfull energy amounts? The small wires shown in the uploaded pictures should glow if 8 KW (110 Volt, 75 Amp) flow through them.
excellent question the wires do NOT change and are not as thick as one would expect

Joe
true it has been said that he can mentally change the traffic light at will

TheOne
« Reply #38 on: August 17, 2005, 01:03:56 PM »
Have you see the device worked while Daniel was not in the same building? Probably not.
Sylvain

hartiberlin
« Reply #44 on: August 17, 2005, 02:54:22 PM »
So can he just power a 200 Watts bulb just with his loose wired coils ?
if he really could get Kilowatts out, then the possibility of fraud is not very possible...

@nikola_tesla
What biggest load did you see personally ? the 200 Watts bulbs lighting up ? What biggest load in Wattage did he show in some videos ?

nikola_tesla
« Reply #45 on: August 17, 2005, 03:16:49 PM »
So can he just power a 200 Watts bulb just with his loose wired coils ?
he used one of his modules to light a single 200 Watt bulb and then someone from the audience lit his cigarette by putting it between the wire and the end of the bulb... another minor note when he powered the bulbs using the Hydro Electric outlet it was dimmer and more yellow that when he powered it with his module

@nikola_tesla
What biggest load did you see personally ?
the electric saw was the biggest appliance he powered with one of his modules
What biggest load in Wattage did he show in some videos ?
no videos were shown ... it was all live

joe
« Reply #47 on: August 17, 2005, 03:50:01 PM »
Hi again,
I understand people who does not believe in that kind of demonstration and i agree it is unbelievable until you have it right in front of you and also when he (Danniel) want you to be part of the experience. What he is trying to do is to transmit a little bit of himself to people who wants to learn a totally new way of manifesting the pure energy. I was there in 1992 for his demo and i was there a few month ago and he does try to make understand how to do it. But we are somehow not ready for this and it makes him sad.
He is a hundred years ahead of our time. Just like Mr. Tesla was. But may be in a near future we will see some of his modules coming on a market (as a toy) so the black power will not be threatened.

joe
« Reply #53 on: August 17, 2005, 07:24:51 PM »
He did run a 3 h.p. motor and a 500 watts street lamp. He also runned an electric drill. But i do remember that when he plugged the big 500 watts lamp to his module he could not let the lamp run to long because (may be 2 minutes) he said at that time that he could not control all the energy and his module was starting to heat.
And the module he had for that demos was made of couples little coils may be 2" high by 2" wide and the wire for the coil were around 28 or 30 gauge and may be higher.
Also he could control a toy helicopter without wire. He was using a little jar with (don't laugh to this one it is true) strawberry jam in it and a little crank on top of the lid to control the helicopter.
Remember this guy is autistic and he still have a young kids heart. Anyway this it.
Regards Joe

nikola_tesla
« Reply #54 on: August 17, 2005, 10:52:33 PM »
interesting ... in my conference he also did not let the fairly big electric saw run for too long ... he simply let it run maybe 20-30 seconds put it off and waited for the applause to settle before continuing ...
humm this would explain why he actually used the grid socket to power the video camera ...
he filmed the whole thing for his entertainment ... he would get a laugh out of seeing everybody freak out at his demonstrations.

nikola_tesla
« Reply #56 on: August 18, 2005, 12:15:09 AM »
Could it be, that he has hidden batteries in his 3 HP motor and in his 500 Watts lamp and the external coils are just only the shortcuts to do the contacts from the
internal batteries to the load ? So that the external coils just only connect the internal hidden batteries to the other pole of the pole ?
Then it would look like the coils would power the loads. but actually they would only conduct the current from the internal hidden batteries to the pole
of the load... Could this be or were the lamp and the 3 HP motor so small, that bigger batteries could not have been hidden there ?
No because all the appliances were brought in by total strangers and they were all powered up.

Are these videos somewhere available to order ?
He claims he would be killed if he released any plans, photos and videos ... so not that I know of.
I find it very curious that photos are available ... I brought my digital camera and I personally asked him and he declined permission.
Stefan also it should be noted that the people present were all invited informally via friends who heard of his feats ...
he doesn't advertise anywhere except via word of mouth ... for example I would bring at least 2 - 3 friends
next time ... also after the 4 hour long demonstration we were invited to go have supper with him and ask him any questions or just talk about anything.

hartiberlin
Stefan Hartmann, Moderator of overunity.com forum
« Reply #57 on: August 18, 2005, 12:28:30 AM »
So many appliances were brought by the visitors ? Could it be, that these were his friends and were already modified to contain batteries ?
If not, did he himself only bring in his coil-setup in a plexiglas stand, so one could not hide any batteries?
Maybe he has himself a real powerful psychokinesis, so he can direct electrical energy via his mind into these
coil spools ?

nikola_tesla
« Reply #58 on: August 18, 2005, 12:33:32 AM »
So many appliances were brought by the visitors ? Could it be, that these were his friends and were already modified to contain batteries ?
IMPOSSIBLE ... I personally knew one of them.
If not, did he himself only bring in his coil-setup in a plexiglas stand, so one could not hide any batteries?
YES ... he used to put his coils on wood many years ago and people have accused him of hiding batteries in the wood so he changed to plexiglass
Maybe he has himself a real powerful psychokinesis, so he can direct electrical energy via his mind into these coil spools ?
YES this is a possibility ... I could go on telling you all other things he claims to be able to do but you would NEVER believe it unless you saw what I saw.

joe
« Reply #63 on: August 18, 2005, 01:07:25 PM »
You are right Nikolas he is mistrustfull, he trusts women more than men. At one of his demo i was with my girl friend and after we gathered and he passed almost the rest of the afternoon talking with her. He feel confident with women cause he did not have a good experience with men since they locked him up and gave him bad treatments like electro-shocks, ect. He said that women would learn how to work with energy faster than men because they are more sensitive. Now, again this guy does not cheat how can you hide a big battery under a vest to run a motor, lamp or little race car (i don't think AC battery does exist anyway). This guy is humble and he is still a kid in his heart and for him since he is young he would like to help this world. And i hope

in a near future he will be able to walk into Montreal or any other places without having a gun pointing at him. Yes he has been shot at while he was in a car near Montreal but he was not hurt. Like Nikolas said: It not easy communicating with him cause he is autistic and also because he has to hide himself all the time. Dr Robert Adams from New Zealand who invented the free energy motor-generator also had his life Threatened because he wanted to helped this world. Sad,sad,sad world...

Markus
« Reply #69 on: August 21, 2005, 10:08:55 AM »
Hi all, I did some research on psi phenomenons. What I have found is not directly related to free energy but is so amazing that I have to post it:
http://psipog.net/media.php
After you watched these videos Daniel´s powers should not surprise you anymore !
The first one with the coin can hardly be a fake.
regards,
Markus

nikola_tesla
« Reply #70 on: August 21, 2005, 04:13:51 PM »
Hi Markus,
Thanks for you link. I looked at some videos very quickly and they look like cheap tricks to be honest with you.
Daniel is way above anything they had on video.
Daniel drew an an electric circuit in 5 seconds on a plain piece of paper using a simple pen and made it work in front of my eyes and ears.

nikola_tesla
« Reply #73 on: August 22, 2005, 06:08:07 PM »
sort of ... he demonstrated in front of the class that he could cause a radio to make distorting sounds when he rubbed the circuit drawn on a piece of paper ... he claimed that he is able to draw a cell phone on paper and use it to make REAL calls ... sounds crazy but after seeing his demonstrations live you would be its possible for him.

nikola_tesla
« Reply #75 on: August 22, 2005, 08:52:29 PM »
incredible stuff ... sounds crazy unless you witness such things there is no way people can believe it ... when he was making distortion sounds he was doing it 4 feet from my eyes and I was focusing on his fingers and they moved in PERFECT syncronization with the distortion made on the radio ... it was claimed that he can speak into the paper and make his voice come out of the radio speakers amongst other claims ... when asked why he didn't do it we were told that in the past he has been attacked by people who flipped out seeing such things believing he was using the devil or something to do it.

sam
« Reply #77 on: September 28, 2005, 08:53:36 AM »
I have looked at various pictures of his wires stuff.

First question if there was a witness :
The easiest one has 1 wire connected between the batteriers to the motor, and the second wire has a spiral and is wireless : Did the motor run this way ? Or was it just to show it's not working with a battery ?
Quick guess, isn't it possible to transmitt electricity to the wires through induction ? Or through hertzian waves which transmit electricity too (like watching TV through antenna, not by cable) ?
May be the wires are tuned to receive hertzian waves and its electricity, or there is some kind of induction (maybe an inductive hoven) to transmit the electricity.
I'm not trying to debunk Daniel, but perhaps can he feel those waves and yet tune his wires accordingly.

Markus
« Reply #78 on: October 01, 2005, 03:47:25 PM »
Of course it would be possible. You could also use a Tesla-Transformer to do that.
But to get a 120V chainsaw to work as shown in one of his demonstrations you need a lot of power. The television tower next to me has an output power of 500kW! If I would tune to one of his frequencies it would only be able to power a small lightbulb or sth. like that.
And remember one of his demonstrations had an audience full of electrical engineers. They would have recognized the fraud immediately.
Hope this helps.

joe
« Reply #85 on: February 22, 2007, 08:21:50 PM »
Hello, I live near St-Bruno and i have seen Daniel Pomerleau twice (by the way his name is not Pomerlou but Pomerleau)
The only thing i can say is: This guy does amazing things and for the skeptic guys well you have to be there to see what he can do with a coil of wires that power bulbs or a drill or other utilities that require higher power. This guy has not limits concerning the power he can created.

LightRider
« Reply #102 on: March 15, 2007, 07:03:34 PM »
I saw Daniel Pomerleau demonstrates about 3 times now and I know personaly his "legal guardian" and family for many years... even them they still don't know how he really makes thoses.
(please forgive my english)
What to say...
1. He is a young child mind in a old body.
2. He can put is "will" or what ever you call that in object...
3. He can do every thing... but he mainly do "toys" that demonstrate free-energy.
4. Yon can't really talk to him... (mental age of a child)
5. Him self don't know "How" he do those thing.
6. His child spirit is obsessed to convince the world he's right (with free-energy)
7. I have test is devices with friends on 3 occasions (we are Mechanical and Electric Engineer and Technician) nothing mush to say... It work but we can't tell how... What we can tell :
a) Electricity seem "appear" sometime in a midle of a wire or a switch or a coil.
b) "NO" logic there (no 3d logic)

- exemple: no battrey, no coil, one switch, one wire, one little flashlight light, on a plestiglass. (please see pictures... link at the bottom of the page).

One side of wire was welded to the switch (only one side of the switch was used) the other side of the wire was welded to "only" one side of the flashlight light.

When the switch is at "on" position the motor run... when the switch is at "off" position the motor stop. The wire was about 6" long (no plastic over) copper.

the electricity simply seem "appear" in the switch. nothing mush to say.

8. is projects are made with all kind off stuff (even noodles !) but maindly hand made coils.
9. In all is project, electricity was turn off if we take out a part of the whole. like a noodles.
10. Many Watt of power...
11. I brought my personal drill... I plug it to one of his device (PS he make all is devices on a plestiglass... no place to hide battery).. with two 100 Watts light bulb... the lights was "wery bright" and my drill to max speed (with some load)...
12. "His Electricity" is safe for human body. He put he tongue many time between the terminals... nothing happen... my drill + 200 watts light was still runing.
13. I hate this kind of presentation.
14. It simply impossible to reproduce it.

this kind of "mental power" cannot be reproduced… and I don't even know if it is possible for someone to learn it...

please look those images... (Pictures and video are usally prohibite) :

https://secure.netsolhost.com/nuenergy.org/alt/archive.htm

under "Daniel Pomerleau Demonstration Photos (593 KB Zip File)"

If you have any questions or suggestion feel free to contact me,

LightRider
Luc Corriveau
Québec, Canada
luc_corriveau@hotmail.com

wattsup

« Reply #103 on: April 03, 2007, 02:25:51 AM »

Hello to all.

As I indicated I would be at the April 1st 2007 demonstration given by Mr. Daniel Pomerleau, and so I was. And truly, nothing could have prepared me for what I witnessed during this magnificent 3 hour presentation on self running electric systems.

I went in with my DC ammeter and my trusty compass to detect the slightest magnetic field and with a rampant determination to find the source of his trickery. Someone else came in with his magnetic field meter which was a very sophisticated hand held device that gives out accurate readings. Someone else had a regular volt meter. We were about 50 people in all.

What I should have had was a whole arsenal of instruments in a sealed room with capabilities to do hyper magnetic sensing, Kirilian photography, body scan and an endless host of other devices, but for what. What can we really understand from this child minded adult of 51 years, that does not have a culpable bone in his body, that sees only the good in his fellow man, that can't even understand what a joke is or what sarcasm is, and who, since age 12 was marveled by his inborn power to control electricity and to put electrical power into unplugged, unconnected electrical objects.

There is nothing on this earth that can prepare you for such an event, as simple as it was, as non glamorous as it was, as low key on the intellectual end as it was, as crude as it was because of those around him not having the polished academic words or gestures. Beyond all this external criteria that one with ample knowledge of the world and of its workings would expect, there was such a simple, honest and direct exposure of a power in man that we all have, but have lost to our other senses and our mind. There was also the open obvious fact that his surrounding help could never accumulate individually or as a group, enough technical and instrumental expertise to cause all these phenomena to happen using trickery. This is not a David Copperfield. This is straight forward, open, no tricks, amazing and worth seeing once in your life.

Mr. Pomerleau is an example of how humans could have evolved. But the way we live and think, it would be like if all humans weighed 1000 pounds each and he would be trying to show us how to high jump. We are so far into our minds, craving the concrete, looking for the obvious, that we will never be able to use his power for human kind. But that's OK.

Now don't get me wrong. He is not God, he is not a Messiah, he is not Allah or Jesus returned. He is just an autistic 51 year old adult with 40 years experience in child mind control over electric power. If we were in 1000 BC, we would probably make a huge statute of him and call him Daniel, the God of Electricity. One of his lines was, Man has discovered his science, but has neglected his conscience.

So what did I see, I'll save this for tomorrows post since I think until now, I still have to digest what I have witnessed. Now I'll go back to my mad scientists laboratory and continue tinkering with my next invention. Something we humans can use now, while I dream of the Pomerleau world of tomorrow were all will have enough, all the time. Oh yeh.

@NerzhDishual

No way. There is nothing under neath, over neath or even inside neath.

hartiberlin

Stefan Hartmann, Moderator of overunity.com forum

« Reply #104 on: April 03, 2007, 03:43:48 AM »

Hi Wattsup, many thanks for the first new report.

If he really puts his tongue between the the hot poles, then it is no DC but very high frequency AC = Radio Frequency power .

This should be able to being detected with small neon bulbs.

Did anybody take new pictures or videos at this event ?

How does he look alike ?

What age does he seem to be, if you say, he is still a child at 54 ? Is he like 10 years old or younger or older ?

Many thanks.

Regards, Stefan.

wattsup

« Reply #108 on: August 03, 2007, 04:22:46 PM »

@all

Stefan asked me to make a review of my visit to Daniels' demonstration to follow-up on my first post of my visit there.

Well, you have seen all the photos of open coils, half-hazardously wound and connected with so many others, all mounted on Plexiglass to show there was nothing else connected, showing small dc motors turning small propellers. All in all the demonstration went through a myriad of these devices, all made in the same general method, no batteries, no exterior connections, no visible or measurable source of constant energy, but regardless, these devices turned on and off seemingly at the will of Daniel.

I was called to the front of the hall several times to measure amperage. Some readings were as follows;

Module #3: 8.6 vdc 2.3 amps

Module #6: 7.7 vdc 4.2 amps

Module #7: Started with mind control. I held the circuit in my hands while he turned it on and the although the on/off switch did not move. He did it from about 3 feet away with his hand held above our heads as if he was reaching into another dimension in space to control the switch. Very weird.

Module #9: 17 vdc 14.5 amps

Also, I held a small dc motor in my hand with just a small 3 inch length of twisted wire leading from each motor terminal to nowhere. Just open circuit. He turned the motor on while it was in my hands. The motor had no obvious manipulation marks such as unbent and re bent end pins, etc. Right out of my hand.

I could go on and on since the demo lasted three hours. But in general, this is it.

He also powered a hand drill, radio and some other devices.

Module #10 was one of his larger devices in the same set-up was producing 185 volts and lit a 100 watt bulb. He also put his tongue on the leads and did not get a shock, plus he lit a cigarette with the leads sparking when held together like a spark gap. Amazing.

So that's it. I do not want to get more heavily involved in Daniels' feats of amazement since that is what they are and there is no point to pursue this since you or I will NEVER be able to take advantage of his gift.

One last thing. The whole event was video taped by a woman who was centrally installed on a higher table located in the back of the room. Her camera was pointed to Daniel filming the whole demo. I did not think to ask to view the video or inspect the video camera at the end of the demo and this, in my view, is the only piece left unturned.

The only possibility of trickery could be the video camera was not really a video camera but a static gun or beam of some type that is concentrated and always aimed at or around Daniel. Is it possible that a video camera could be faked to emit some type of beam that hits the Plexiglass and that induces an electrical current therein. This is the only question I have unanswered. Maybe a microwave gun. I am saying this because they said they always video tape the events but they offer no video for sale. So what's the point.

Anyways, I would forget this as there is no OU answer for humanity here. Only a quagmire and potential waste of time and energy although a very deep curiosity indeed. Something like seeing the Elastic Man or the Hairy Woman at any good circus.

Newbie

« Reply #109 on: January 02, 2008, 07:52:56 PM »

Quote

Anyways, I would forget this as there is no OU answer for humanity here. Only a quagmire and potential waste of time and energy although a very deep curiosity indeed. Something like seeing the Elastic Man or the Hairy Woman at any good circus.

I would love to see Daniel in one of his demos.

It seems that this group has written him off as a waste of time , as a entertaining side show .

There is no OU here? There is NOTHING but OU there.
The fact that you can't reproduce it means nothing.
What Daniel shows people is simply another way of doing things.
I have read posts here that imply that EE education is a kind of brainwashing . I have to agree .
Daniel is simply a person that has not been brainwashed AT ALL . At least not as far as energy goes.
He tried to explain how it works
Do you know how to have faith ?
Do you know how observe something without using your head?
We are taught that intelectual thinking is the holy grail , the way to solve all problems .
It is not .
Tesla could see how things were going to work before he built them.
The man that Built Coral Castle moved those huge stones with his mind.
Daniel can make things run . .
None of us have it all .
We all have our own limitations.
Daniels limitations are as clear as his powers;.
The question is what do we learn from him?
Personally I don't see humanity ever catching up with people like Tesla , as long as we stick mostly to the EE mentality.
Newton among others changed the world .
His findings have been taught as absolute fact for many years.
The universe that Newton showed us is a dead universe.
In Newtons universe even life itself is just a sting of mindless events unwinding.
The universe it NOT dead .
There is a non physical consciousness that is the basis for ALL physical things.
This consciousness in motion is the basis for what we call energy.
All physical matter is then created from this energy.
Another way to say this is ...... there is nothing in the universe that is not God.
The way to get closer to understanding how Daniel does what he does is by accepting that life is more than we have been taught.
Much of what we have been taught in effect keeps us focused on our current limitations and the limitations of those that taught us.
People like Daniel could be showing us how we ALL could live someday .
If Daniel can manipulate energy , others can learn to do it too.
Can I manipulate energy like Daniel ?
No
Like everyone else here I have to many limatations in that area .
I do understand what we said about needing faith.
I also understand what me meant when he said it wouldn't work if you think about it to much.
Would it help people understand what Daniel does by trying to replicate what he makes ?
No. His devices work because he chooses for them to work.
He could just as easly make things run with NO wires at all .
You could say that there is no possable OU to be found here.
You could also say that there is NOTHING but OU .

Tesla saw that we are living in an endless see of energy. He was blacklisted for trying to bring that reality to humanity .
The groups that blacklisted Tesla made a point to influence the academic world. OU concepts have been treated like a disease ever sense.
gary

wattsup
« Reply #111 on: January 02, 2008, 10:09:43 PM »
@one
I understand completely what you are saying. I had one of his DC motors in my hand connected to nothing and it was turning full speed. Daniel even shut it off from a distance of about 4 feet away from me, then turned it on again.
The guy is a charm of a nice young minded man. I cannot answer as to how he does it. I only know he is not allowed to divulge how he is doing it. It could be faith.
But my aim was to witness and report an event in the manner that we at OU would expect one to do so under given circumstances. No recorder, no video, no photo. Just meters and sketch pad.
The bottom line is yes it is something remarkable, but so are many other guys doing tricks. It's always remarkable until you know how it works. At OU we "try" to keep a clear head and concentrate on the value this has for humanity. Him trying to show us or explain to us how it works, if it is in the realm of the supernatural phenomena, would be like trying to show an elephant how to fly. Pointless. So the value for OU in the world as far as I can ascertain at this stage is nil, zero.
With over 5 billion people on this rock, there is bound be be many aberrations and in my view Daniel is one of the top on the list.
If you are ever in the Montreal area, find out when the next demo is by contacting Mr. Pierre Fecteau at;
From: "Pierre Fecteau" <pfecteau@sympatico.ca>
I know there was one recently but I could not make it for that date. There will be others.

Newbie
« Reply #116 on: January 03, 2008, 05:08:51 AM »
Quote from: not_a_mib on January 03, 2008, 03:03:18 AM
Does Daniel suffer any aftereffects from performing these demos, especially the higher-wattage ones? This might reveal whether he generates the energy (metabolism [1]) or channels or directs energy from the surroundings. If the energy is metabolic, it might make a really good way to burn off those excess calories. (1 kilowatt load = 0.239 large-calories per second) This would tend to make one really tired and hungry afterwards. If the energy is obtained from the thermal, zero-point, etc energy from the immediate surroundings, slight cooling of the demo area or other effects might show up. If the source is something non-local such as the power of Ulyaoth [2], heating of the demo area is likely.

not_a_mib
I can only answer this from my understanding of what is going on.
The short answer is No he doesn't have any afteraffects ...... I am basing that on the fact that he has been able to do it sense he was a young child and still doesn't really understand HOW he does it. It is just something he can do . My closest experiences to what he does

would be what I call lightwork . Working directly with energy of the mind and higher mind. When lightwork is done right , there is nothing physical about it at all . It is simply your physical mind interacting with what is sometimes called the aether.
Quote
1. Star Wars freaks will claim that mitochondrial activity generates the Force as well as converting ADP to ATP. (In best Yoda voice) "To the bulb light, you must feel the Force flowing through you!"
I think they used a similar name in starwars ....a mitocondrial is the actual part of the cell that stores energy .
The first 3 starwars movies were almost like a lightwork class . much of what they said about the force is true for lightwork. The last 3 had almost nothing related to lightwork.
Scorpio

Newbie
« Reply #117 on: January 03, 2008, 05:36:29 AM »
Quote from: wattsup on January 03, 2008, 05:04:51 AM
One of the craziest panels was the one with four switches and four loads. Each switch controls only one of the loads. But look at the circuit.

Whattsup
I think you could say that that panel works on the plecibo effect . There is no way it can actually do anything . but apparently if you truly believe it can ....then it does.

TheOne
« Reply #118 on: January 03, 2008, 05:38:15 AM »
Its more a magic show, no OU there, he his the INput Smiley

Newbie
Re: Daniel Pomerlou demonstrates free-energy
« Reply #119 on: January 03, 2008, 05:57:11 AM »
Quote from: TheOne on January 03, 2008, 05:38:15 AM
Its more a magic show, no OU there, he his the INput Smiley
TheOne
I agree that he is the input ....and it is more like magic than science .
Does that mean that it is not OU ?
Lets see ....he inputs a thought ....and what he chooses to run starts running .
I am not sure how to measure the input of his brain cells ....but I am pretty sure that how ever you measure them he is getting nearly infinite return on his input. .
You have no idea how to explain it
Or even how to study it .
Does that mean that it is not OU
Isn't this if I don't understand it it isn't real attitude something we are trying to get past here?
gary

hansvonlieven
« Reply #120 on: January 03, 2008, 07:37:21 AM »

G'day Wattsup,
Reminds me very much of one of George de la Warr's radionics boxes.
Hans von Lieven

Newbie
« Reply #122 on: January 03, 2008, 05:39:17 PM »
I think that you could be interested to this:
http://utenti.lycos.it/fischerconsulting/pomerleau.html

neptune
« Reply #123 on: January 03, 2008, 09:19:28 PM »
Regarding the 3 pdf files in French submitted by Scorpio. My understanding of french is poor, about 60%. These files seem to show an examination of the apparatus, but I don't See the name Pomerlou Actually mentioned. Also several of these circuits contain batteries, which is not in agreement with with witness accounts. The third file appears to reach the conclusion that the apparatus is a fraud, and contains hidden wires. Could someonewith good French confirm or deny what I have said. My knowledge of French is just what I picked up whilst working in Europe as a truck driver.

pese
« Reply #124 on: January 03, 2008, 09:37:37 PM »
Hello, I have read these Article.
The first 2 documents, mean that 2 easiest devices were checked.
Have no Frauds to show, but that this does not correspond to the rules of physics,
a differently institute has probably looked so FRAUDS and claims to have
found concealed connections with MAGNIFYING GLASS (drawing! No photo!)
(I belive THIS PAPER IST THE onlyiest FRAUD!!) That people must not try longer
to experimenting , with this devices)
ONLY this is not right in my opinion, because Daniel used only single pol switch
and not like in the "proof" drawn 2 pol around switch

Newbie
« Reply #128 on: January 04, 2008, 01:50:54 AM »
Hi all, I have one more old saved document about Daniel. Also in French language.
* DanielX.doc (1016 KB - downloaded 25 times.)

Newbie
« Reply #129 on: January 04, 2008, 03:46:25 AM »
I read about Daniel some years ago. Did not realize he gave demonstrations. This shows me some credibility. I am showing my esoteric side but it would not be much of a supprise to me if it was his consciousness that energized his circuits. I suppose William Tiller would call it psychoenergetics: http://www.tillerfoundation.com
Princeton shows how consciousness effects their EGGs in a global way:
http://noosphere.princeton.edu/
Then you can take it a step further and take a look at the Isaac Drone information:
http://isaaccaret.fortunecity.com/ There he gets into how they figured the alien antigravity

devices worked by thought. The beings would merely focus their attention on the hieroglyphs on the machine and through some sort of exotic nanotech the machine would provide the correct response.
Although I would hate to see Daniel used as a lab rat but it would be interesting to know if he possess an advancement in his genes or perhaps he has a higher brain wave activity. Maybe a safer solution would be someone else using their own psychoenergetics to try to energise his circuits under a double blind system.
For someone to put together coils like that which respond to his thoughts perhaps it is like he is channeling with a higher entity or maybe a higher 'self' when he is building these circuits.
Anyway just some 'thoughts' as I find this stuff fascinating. I believe we may be heading down this path some day in the future. We are over due for a new paradym in my opinion. Smiley
Take care.

neptune
« Reply #134 on: January 06, 2008, 08:03:07 PM »
@hansvonliev. regarding your reference to the radionics box. As a kid I came from a poor family. I had a few books on radio from a junk shop. Buying components was beyond our means, and nobody had anything to throw away, so there was very little "Junk". I remember collecting a few bits and pieces and some wire, and connecting them in a sort of random circuit to see what would happen. Perhaps some of you did the same? If only we had had FAITH..

---

http://utenti.lycos.it/fischerconsulting/pomerleau.htm
http://www.overunity.com/index.php?action=dlattach;topic=393.0;attach=16011
http://www.overunity.com/index.php?action=dlattach;topic=393.0;attach=16012
http://www.overunity.com/index.php?action=dlattach;topic=393.0;attach=16013

ANALYSIS OF DANIEL POMERLEAU DEVICES

Femi Fischer
(2008)

This is a functional analysis of Daniel Pomerleau's devices. The author thinks that IF Pomerleau's devices work as stated, this could lead to new technologies. This document is public.

The author thinks that substantially all the devices of Daniel Pomerleau can be understood in a more or less simple way. I will try to give answers to various question about Pomerleau's phenomenon.

Q1) Where does the energy come from?
A1) The energy STARTS from Daniel himself. He produces biological Tesla coil effects. And,

this is not the only case in the history: probably Testatika's Baumann too had some electrical powers (in a sense, EM experimentation for them could be easier).

Q2) Why the energy remains in the system after Daniel energizes it?
A2) In nature exists an energy amplification mechanism that can 'lock' the electromagnetic machine status after Pomerleau's 'kickstart' (and it is an auto-igniting positive feedback, so it could be the cause of Daniel's powers too). More informations about this topic here. Baumann's Testatika used speculatively this mechanism to 'lock' the machine once started, and he found a way to 'kickstart' the RLC net when you turn the disks.

Q3) How Daniel's devices work, then?
A3) We could see Daniel's devices as a random RLC topological net. In this random topological net, you can have energy reservoir effect and antenna effect. Where you have good antenna or cable impedance coupling you have good energy transfer to or from the system.

Q4) What about the phsychic control?
A4) I can tell you that I have a tester and I can produce several millivolts simply moving about my tester. This is due to induction effects of the body which contains water and iron and more electromagnetic significant components. The body is constantly electromagnetically coupled to these devices (think about RF TX-RX) and every slight movement or electrical condition variation can influence the devices.

Q5) How can I 'kickstart' those devices myself then?
A5) The system must be energized first to be locked after. The 'kickstart' energy can be any energy that can properly stimulate the RLC circuit, like EM kicks or voltage contact kicks on nodes.

Q6) Why doesn't Daniel suffer elecrical shock when he touches the terminals?
A6) It depends on ohm's law and on frequency. Especially, a simple thin cable works as a low-pass filter due to skin effect. Moreover, I suspect that most of the energy is produced directly INSIDE the electrical appliance, due to strong EM induction. The DC current flows when you create closed circuits with lowest resistance in an geometro-electromagnetical coupled polarized environment; AC current flows also on coupled open circuits, but with lowest resistance.

Q7) How can we have DC from AC amplification component stimulation?
A7) Look here.

Q8) How does that strange apparatus ELEMENT#5 work?
A8) It's a matter of selective antenna coupling.

Q9) What can be the applications of this technology?
A9) Medicine, transportation, space propulsion and colonization, and more. It depends on the attitude of the people who uses it.

Q10) Has any useful calculation been made?
A10) The fluid coupling magnetic amplification component efficiency calculation (see here) has

been expressed through R L C and Vmax values in a simplified RLC net, to be applied in technological systems (Testatika, TPU, MEG, etc.):

---

http://www.geocities.com/masolis_52/weird.html

A Possible Explanation For The Operation Of Spooky Tech Devices Based As Far As Possible On Conventional Physical Theory

By Mark A. Solis

(Shreveport, Louisiana)

The various devices pictured on the preceding page at http://www.geocities.com/masolis_52/weird.html all show clear evidence of "violating" known circuit laws, such as those available from the link to http://www.geocities.com/masolis_52/circuits.html which list is representative of the considerations which must be applied to any sort of conventional circuit analysis.

Having established by observation that the devices are functioning in what may be termed an "impossible" mode (at least at first glance), we are now faced with a dilemma: either (1) we must accept that conventional theory is somehow wrong, despite massive experience to the contrary, or (2) we must uncover an explanation that is in accord with known theory, although exactly what theory that is initially might be quite unclear.

The only other alternative would be to accept the supernatural on its face, without further discussion. However, (1) that would not be acceptable to many people of science, and (2) it isn't necessarily the answer (although it could be, but we should investigate the matter first).

The Available Facts

A list of the available facts is found on the following link: http://www.geocities.com/masolis_52/evidence.rtf

From the point of view of the circuit laws as given above, the salient observations from the list of available facts are these:

(1) the devices are of haphazard construction (but all have coils);

(2) the devices have one or more significant open connections;

(3) the devices have no hidden power sources or batteries (but note that one does use 2 "D" cells, which nonetheless are basically "connected to nothing," in conventional terms)

(4) the devices are scaleable (more and bigger coils, more power);

(5) the devices present no shock hazard;

(6) the devices are "programmable" to quit working after a predetermined period of time;

(7) the devices can respond to thought command of various users (though not all users, interestingly).

The most relevant circuit laws being violated are those laws pertaining to a closed loop circuit: Ohm's Law, Joule's Law, Kirchoff's Mesh Law, etc. According to ordinary theory, a working circuit must be a complete loop of some sort. For steady-state or "DC" circuits, this means that there must be a complete circuit loop --- no exceptions. For "transient" or "AC" circuits, there must be a complete circuit loop through each of two or more magnetically-coupled inductors. Without a complete circuit loop, these laws presume that a circuit cannot function.

Observations (1), (2) and (3) above clearly violate these laws.

Before proceeding to the next consideration, however, we should note that Kirchoff's Nodal Law is not being violated, except in consideration of the Superposition Theorem, for which a complete circuit loop (or mesh) is again required.

Next, the thermodynamical laws are being not just "violated," but flatly thrown out the proverbial window. Even those devices having no batteries at all nonetheless appear to be producing significant power "from out of nowhere." Tests for microwave radiation or other "invisible" power sources were conducted, but to no avail.

Observation (3) clearly violates the thermodynamical laws.

Yet, we must realize something: proper statement of the first and second laws of thermodynamics begins with the prepositional conditional, "For a closed system, ..." What this means for us is that we are dealing with some kind of an open system, although we still have the circuit law violations to consider.

Next, it is interesting to note that the devices are scaleable. Here, in the very midst of an apparent contravention of science, we encounter a perfectly normal expectation: namely, that bigger devices, with more and bigger coils, produce more power. This again suggests that we are dealing with some sort of [open] system that, despite its violation of the circuit laws, might be explainable in understandable terms.

Observation (4) above states plainly that the devices are scaleable, just like any "normal" system.

The absence of a shock hazard is remarkable, but not an utterly unknown phenomenon. Current research, notably by T. E. Bearden and others, has revealed that it is possible for electric circuits to somehow transfer energy (hence produce power) in a fashion that superficially does not appear to involve charge movement in the physical circuit as

we would normally think of it. This phenomenon can be attributed to a break in the charge-mass coupling, and is associated with certain
modes of circuit conduction that might allow the creation of "room temperature superconductors."

Observation (5) above suggests that possibly these devices are behaving as room-temperature superconductors.

The "programmability" of the devices has not been described in any detail, so a proper analysis is unlikely. Nonetheless, it would appear that this "programmability factor" is not readily visible in the circuits, and hence probably is some function of the inventor's own mind (see my subsequent speculations, below).

The observed fact that the devices can respond to thought command by various users again indicates that something about the human mind is important.

In summary, we have devices that (1) operate in violation of ciruit laws, (2) operate in violation of thermodynamical laws for closed systems, (3) operate in accord with Kirchoff's Nodal Law, (4) are scaleable like normal systems, (5) behave as room-temperature superconductors, and (6) respond to mental "programming" and "thought commands."

The circuit law violations are still a problem at this point, but other factors are beginning to come into focus: for example, the violation of the thermodynamical laws indicates we are dealing with an open system; compliance with Kirchoff's Nodal Law while violating the Mesh Law indicates non-planar circuit couplings of unknown nature; scaleability suggests a consistent operational framework of unknown nature; room-temperature superconduction indicates some sort of interesting effect on particle spins; and "thought control" of the devices indicates a form of quantum entanglement with living systems (namely, the experimenters) that recently has been given a great deal of attention in experiments involving spin couplings at a distance, replicated in laboratories around the world.

Preliminary Resolutions

With the information now in hand, we can begin to attempt to resolve the issues presented by these "Spooky Tech" devices.

First of all, the circuit law violations might be addressed by a solution to the problem of the non-planar circuit couplings with which the devices obey Kirchoff's Nodal Law but not the Mesh Law.
Presumably, these couplings likely will prove to involve energies of a non-obvious nature, and might relate to the effects on the spins of the conductors and components that result in the behavior
of the devices as room-temperature superconductors.

Secondly, the fact that we are dealing with an open (or non-thermodynamical) system means that we must look for a power source that is "off the board," as well as non-conventional (recall that initial searches for such power sources revealed nothing). We will consider this point further, later on in the essay.

Third, the fact that we are dealing with a non-planar circuit (in spite of the apparently planar physical construction) seems to indicate "off the board" couplings which may relate directly to the source of power, which also is "off the board." (This is a case of a somewhat obtuse application of the old adage, "Birds of a feather flock together." We already know that the source of power is located somewhere off the board, so the non-planar couplings obviously might be "somewhere nearby" the source of power, so to speak.)

Fourth, scaleability in and of itself is an indication that whatever allows these devices to operate is, in some sense, a consistent system. This is to say that whatever "it" is, it is not chaotic. Some sort of orderly, usable, understandable framework is suggested by the property of scaleability. Moreover, linearity of some sort also is suggested, or at least possible.

Fifth, room-temperature superconductivity is a clear and unequivocal indication of some sort of spin alignment taking place at the atomic level (i.e., interatomic spin couplings are being affected), or even the particle level (i.e., individual particle spins are being affected without regard to atomic structure, etc.). This opens the door to so many possibilities for everything from gravitational and inertial phenomena (think "the Overhauser Effect," especially as used by Dr. Frederick Alzofon, et al) and hence space-time phenomena, to couplings to the quantum vacuum (think "Zero Point Energy" here), that it seems we must be on the right track, at least in the investigative sense. (We find ourselves dealing with "possibilities", instead of impossibilities.)

Finally, the thought-control factor goes back to the idea of quantum entaglement with living systems. One should note that in the laboratory experiments mentioned, the thoughts of the people performing the experiments both determined the outcomes, and apparently provided the energy to produce those outcomes, whether acting as power sources, or merely as conduits for some other source of power.

We are now ready to tackle the problem of explaining the operation of these "Spooky Tech" devices --- and may we all learn something in the process.

Let The Speculation Begin

As for myself personally, it appears that the devices are not half as interesting as the inventor. This is not to say that there is nothing about the devices that is of interest, however. Even so, the available facts, and the subsequent observations just made, seem to me to suggest that it is the inventor who is far more interesting than anything that he has built.

Just look at what we have: (1) non-planar circuit couplings of an unknown nature; (2) an unknown source of power; (3) scaleability (and hence order); (4) room-temperature superconduction (indicating spin alignment phenomena, space-time and zero-point phenomena, etc.); and (5) quantum entaglement with living systems. Items 2 and 5 (and hence 4) point directly to the inventor.

But what about the devices? Well...they are clearly outputs. The thing is, it would appear that the inventor is the "input."

A Trial Explanation -- Not Set In Stone

Allow me to begin by explaining my views of certain aspects of living systems (that is, us) that I think bear on the solution to this problem of the "Spooky Tech" devices.

We have senses with which we interact with the physical world. This physical world, in turn, can be described as a sort of "mass-energy hologram." (See a book entitled, "The Holographic Universe" by Michael Talbot.) Our senses provide us with a map of the universe not only as it is, but how it unfolds: our sense of "time." This, in turn, provides us with "memory."

I would note, however, that "memory" is not something we store in our brains, or our body cells, as many think. Rather, we are "storing" a space-time map of our sensory input, and the universe itself IS our memory, exactly as we experience it. Simply put, using the most dense possible method of data storage, namely binary, we do not have enough atoms in our brains to remember even a few days worth of experiences. Yet, laboratory studies confirm time and again that we remember everything we experience.

Hence, we have a quantum-level space-time linkage in our brains and bodies. (Recent experiments have revealed that "memory phenomena" are associated with our individual organs and tissues. Specifically, this has been observed with transplant patients studied for the express purpose of determining how "cellular-level memory" works.)

Now, the world as we experience it is this mass-energy hologram that we, through our genetically-designed construction, turn into the mental images we see, hear, smell, taste, etc. The world is, in that sense, exactly what we believe it is---at least "in our heads."

But what if there were an "extra coupling" through our DNA, that did not rely on our thoughts driving our limbs, feet and hands to change the world around us? What if quantum entaglement gave us the proverbial "extra channel" to affect the world we see by the power of thought alone? (Imagine thought merely as the organizing principle, and the power source being the quantum vacuum, channeled somehow through scalar field couplings with our DNA, then coupled to the outside world through ordinary quantum entanglement. Be sure to see the relevant links in the bibliography at the bottom of this page.)

This is what I think is happening with the inventor of these "Spooky Tech" devices. HE envisions the devices; HE builds them; HE knows what he wants them to do; and the devices respond not by the circuit laws or thermodynamics, but by the structure of the quantum entaglement by which the inventor causes the devices to work.

This being the case, we would expect to see exactly what is being observed: an unknown power source, non-planar circuit operation in violation of the other circuit laws, compliance with Kirchoff's nodal law while violating the mesh law, and so forth. Even thought control would be in evidence.

And so it is.

One further point: I would predict that upon the inventor's death (someday, and hopefully not soon), all of his devices will cease to function, since it appears likely that he is an integral part of their ability to function.

May he live a long and happy life.

So---What Now?

A complete understanding of this phenomenon properly should come from a physiological study of the DNA, brain structure, and other such factors, of the inventor himself, rather than further study of his devices. In essence, the devices are for him no more than psionic icons through which power is flowing as directed by him, whether he does so consciously or otherwise. The devices, without their link to the inventor by conception, assembly, and the imagining by the inventor of their functioning, would simply be ordinary devices dependent on ordinary circuit laws, and hence would not work. But, because HE imagined them, HE built them, HE touched them, and HE pictured them in his mind as working devices, THEY WORK.

A complete study of the inventor, medically speaking, would consist of nothing more than some DNA printing, standard blood tests, a few X-rays, and perhaps some PET/MRI scans conducted while he is "inventing something."

Specially designed tests utilizing orthogonal fields and scalar potentials should give especially interesting results. In particular, since the A-field is directly relevant to the Bergman charge-ring/pinch-force structure of atomic particles (since A = curl B, where B is the magnetic field), a study of that particular field with the inventor should be especially fruitful.

The results should give some indication of useful data to find how he channels power from his mind to his devices. This discovery, however, should remind us of a certain movie named "Forbidden Planet." The salient quote is: "...monsters...from the id...."

Once we learn what DNA formation allows us to channel the power of space-time and the zero-point field in such a fashion, there's no turning back.

Caution is advised.

An Epilogue, Of Sorts

I am reminded of an old Star Trek episode, where a group of orphaned children took over the Enterprise. They were led by a "Gorgon," who would appear to them whenever they chanted the following verse:

Hail, hail,
Fire and snow,
Call the Angel,
We will go,
Far away,
For to see,
Friendly Angel
Come to me.

And the Gorgon would appear, and tell them, "As you believe, so shall you do."

This inventor's natural power is the key to exactly that. But don't forget the lesson of Morbius....

Mark A. Solis
Sheveport, Louisiana
~5:25 PM CST
Friday, March 3, 2006

Bibliography

1. The Bergman Particle Model: A charge-ring/pinch-force model of subatomic particles. http://www.commonsensescience.org/

2. The Vector A-Field Potential: A direct linkage to the Bergman form of subatomic particles and the A-derived force (F = k grad dA/dt). http://www.ctglabs.com/teslos1.htm

3. The Zero Point (Quantum Vacuum) Energy. http://en.wikipedia.org/wiki/Zero_point_energy

4. The Quantum Vacuum (Zero Point) Energy. http://en.wikipedia.org/wiki/Vacuum_energy

5. Basic Technical Information About DNA (WikiPedia). http://en.wikipedia.org/wiki/DNA

6. Information About Brainwaves (The Crossroads Institute). http://www.crossroadsinstitute.org/eeg.html

7. Information About Brainwaves (WikiPedia, with additional links). http://en.wikipedia.org/wiki/Brainwaves

8. Quantum Entanglement (WikiPedia, with additional links). http://en.wikipedia.org/wiki/Quantum_entanglement

---

www.quanthomme.org

The Curious Electrical Assemblies of Daniel X [Pomerleau].

In the space of one month, several readers have asked if we had more information about the curious small electrical assemblies of Daniel X.

We are sorry but we have no news since that time (October 17, 1999) where we have posted this information on our basic site (www.quanthomme.org) in "systems with no moving parts" we chose 4 photos)

It is likely that the small batch of photos in which we had drawn no longer circulating on the web now, so we publish all: it is a thin material but if it can satisfy our readers ...

Since the publication of this page we have received 18 January 2005, a letter from a witness.

His story (that we can finally put online after the long interruption due to the prolonged maintenance of our host) is given later, after the photos.

One of our correspondents has been a demonstration and said there was no trick, but the results obtained with these few pieces of wire coils were very annoying for someone who has knowledge of electricity!

Presumably, according to some witnesses, it would have occurred after certain treatments (probably wrong) that special services would have been subjected to. However, all those who met him agree that he communicates very well, and even likes a joke. Daniel X is under guardianship, but the role of guardian of this young man is apparently not easy in light of the threats against him.

The photos on the Internet appear to be a good reflection of the film as evidenced by those who saw the video and also people who attended the experiences we have encountered. The electrical and electronics engineers are particularly puzzled because, equipped with its mounting Summary yarn on bottle neck and twisted pasta, Daniel X. obtain sufficient energy to power engines

He even managed to build aircraft (fifteen) giving several kilowatts and that special services would come to destroy.

It could be that these devices are based on resonance frequency, according to Tesla. By manipulating and moving components summary, Daniel X signal to observers when the current goes through.

(His son convolutions of the camera are reminiscent of Perrigo).

We just informed us that the editions Felix does not answer the questions posed. Yet it was in their offices that several of our correspondents were able to view the video (which are certainly taken the pictures above).

A witness said:

"Hello,
I am a big fan of the free energy and I work very hard to make your site known to everyone around me ...

About Daniel X, I know him pretty well and I watch his demonstrations frequently.

I am a mechanic by trade and I am currently in auto mechanics teacher in my area. I am very comfortable with electricity, all this to tell you that

- When you hold in your hands a little 12 volt motor and you have the chance to tear this little engine and find that this small engine is just like any other small motors 12 volt permanent magnet

- And then you go up (assemble) the engine to operate with a 12 volt battery without any problems

- And a few minutes later Daniel tells you to keep the engine in your hands with any wire connected to a battery or power source

- And then he took two little son of five centimeters (approximately) in length, one in the right hand and another in the left hand

- And he said that when you link the two together son (both son Daniel is in his hands), your little engine that is connected to any power source will start to operate with the same rotational power.

Daniel son has linked the two together and the engine that I held in my hands began to work alone and without any power.

Daniel did not need all its fixtures which have no son twisted logic to operate our aircraft.

I invited several scientists to come see his montages and also had the chance to take a small motor in their hands ...... and finally sit on their chairs and say that they have never seen it all their lives.

If Daniel did not pose a threat to his life and if he did not have this handicap of being autistic (mild) but rather for not having reached Conversation "logic", perhaps we could pass this knowledge that seems so easy to him.

Yes! it is unfair not to have the ability to transmit such knowledge as Daniel always says if you want you can do because everyone can do it like me.

Sometimes I wonder if Daniel really knows how it works .... Who knows for the moment I do that attending these demonstrations while hoping one day understand.

For the protection of Daniel, I ask you not to disclose his identity because all it does is free and also wants the world to become autonomous and no oil or electricity to pay. "

More information on May 18, 2006, according to information provided by one of our readers, Jacques B. whom we thank.

"Daniel X * is called Daniel Pomerleau and actually lived in Canada especially Quebec, and he actually has autism light.

And not that these arrangements will provide a few kilowatts are not destroyed and continues to walk across Quebec on request and no one can explain his montages are the least we can say very surprising.

Congratulations on the production of photos ** of your site, keep your treasured because they are the only available because it does not allow anyone to take.

It was ten years ago that I saw for the first time Daniel Pomerleau and I returned for the fifth time in bringing each time a PhD and every time without a shred of explanation.

I feel the bitterness that one day it will disappear, I mean die a natural death after failing to disclose his secret he will take with him a legend and will be created.

In the meantime I continue to believe that it shows us that energy availability without limit. With basic theory which I think is based on the application of the theory of Professor Valley and the interaction of electric fields on the atoms of carbon.

Good thinking. "Jacques B.

Frank Wyatt PRENTICE

Electrical Power Accumulator

US Patent # 253,765

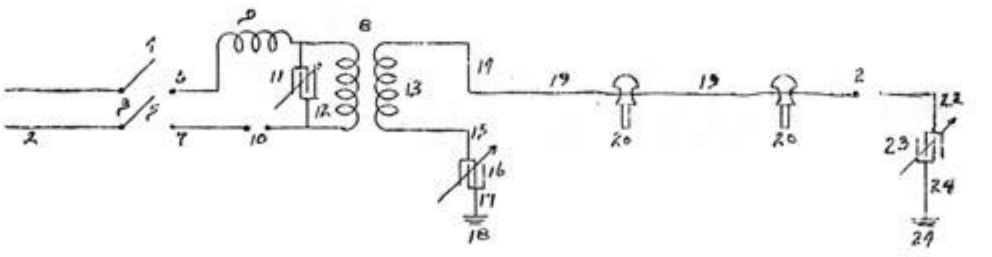
To All Whom It may Concern:

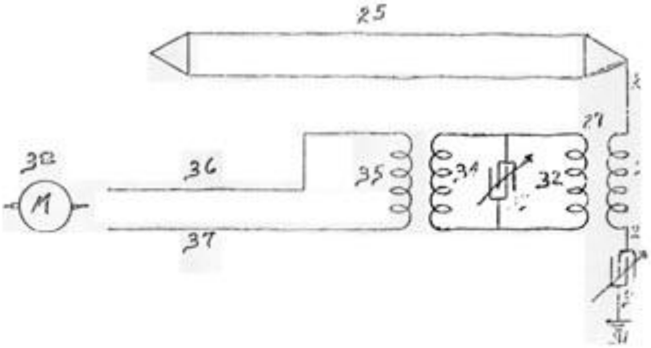
Be it known that I, Frank Wyatt Prentice, of the City of Meadville, County of Crawford, State of Pennsylvania, Electrical Engineer, having invented new and useful improvements in Electrical Power Accumulators, do hereby declare that the following is a full, clear and exact description of the same:

My invention relates to improvements in Electrical power Accumulators and the like, wherein the earth acting as rotor and the surrounding air as stator, collects the energy thus generated by the earth rotating on its axis, and utilizes the same for power and other purposes.

In the development of my Wireless Train Control System for railways, covered by my United States Letters Patent Number 843,550, I discovered that with an antenna consisting of one wire of suitable diameter supported by insulating means 3 to 6 inches above the ground and extending one half mile, more or less in length, the said antenna being grounded at one end through a spark gap and energized at the other end by a high frequency generator of 500 watts input and having a secondary frequency of 500,000 would produce in said antenna oscillatory frequency the same as that of the earth currents, and thus electrical power from the surrounding media was accumulated along the length of the transmission antenna and with a closed oscillatory loop antenna 18 feet ion length run parallel with the transmission antenna at a distance of approximately 20 feet it was possible to obtain by tuning the loop antenna, sufficient power to light to full candle power a series bank of 50 60-watt carbon lamps [3 kw]. Lowering or raising the frequency of 500,000 resulted in diminishing the amount of power received in the 18-foot antenna. Likewise, the raising of the transmission antenna resulted in a proportionate decrease of power picked up on the receiving antenna and at 6 feet above the earth no power whatever was obtainable without a change of potential and frequency.

It is the objective of my generic invention to utilize the power generated by the earth by means herein described and illustrated in the drawings. The two figures in the drawings illustrate simple and preferred forms of this invention, but I wish it understood that no limitation is necessarily made as to the exact and precise circuits, shapes, positions, and structural details therein shown, exhibited and herein described in combination or otherwise and that changes, alterations and modifications may be made when desired within the scope of my invention and as specifically pointed out in the claim.





Referring particularly to Figure 1; 1 and 2 are alternating current feed wires supplying 110 volts 60 cycles to a high frequency generator. 3 is a switch and 4 and 5 are poles of same. 6 and 7 are connections of high frequency transformer 8 for stepping up the frequency to 500,000 and the voltage to say 100,000. 9 is an inductance coil. 10 is the spark gap, and 11 is the adjustable condensor, while 12 is the primary winding of transformer 8 and 13 is the secondary winding of transformer 8. Secondary winding 8 goes to ground through lead wire 15 to adjustable condensor 16 and lead wire 17 and 18. 1`4 is lead wire from the other side of secondary winding of transformer 8 to main transmission antenna 19 supported by insulating means 20. 21 is spark gap from transmission antenna 19 to ground through lead wire 22, adjustable condensor 23, lead wire 24 to ground 24'. Transmission antenna 19 may be of any length desired.

In Figure 2: 25 is a closed oscillating loop antenna of any desired length and for greatest efficiency is run parallel with transmission antenna 19 of Figure 1. 26 is lead to step down transformer 27, of which 27' is the secondary, 28 is lead to adjustable condensor 29, lead 20 to ground 31. 32 is primary winding of transformer 27, 33 is adjustable condensor, and 34 and 35 are windings of frequency transformers supplying current through leads 36 and 37 to motor 38,or other power devices.

Having described the drawings, I will now describe the operation of my invention. Throw switch 3 connecting feed wires 1 and 2 with transformer leads 6 and 7, adjust spark gap 10 and condensor 11 so that a frequency of 500,000 and 100,000 volts is delivered from secondary leads 14 and 15 of step up transformer 8 of Figure 1. Next adjust spark gap 21 of transmission antenna 14 so that all nodes and peaks are eliminated in the transmission of the 100,000 volts and 500,000 frequency along said antenna 14, by the surges occurring pass over the gap 21 to lead 22 to adjustable condensor 16 to lead 15 to secondary winding 13 of transformer 8. The oscillatory current of 100,ooo and frequency of 500,000 being of the same frequency as the earth generated currents and thus in tune with same, it naturally follows that accumulation of the earth currents will assimilate with the same tuned currents and frequency with those of the output from transformer 8 along wires 14, affording a reservoir of high frequency currents to be drawn upon by a tuned circuit having the same characteristics of 500,000 frequency capacity which is shown in Figure 2; the antenna 25 is tuned fundamentally to receive a frequency of 500,000 chich current passes to lead 26 through winding 27' of transformer 27, thence to lead wire 28 through adjustable condensor 29 to lead wire 30 to ground 31. The high frequency currents of 500,000 and voltage of 100,000 passes through to winding 32 and by adjustable condensor 33 and windings 34 and 35 of the frequency transformer 27 is stepped down to a voltage and frequency suitable to operate motor 38 receiving current from leads 36 and 37. This makes available a current supply for any purpose whatever, such as operation of railway trains and current for industrial plants, lighting, heating, etc.

The return of current through the earth from transmission antenna 14 is preferable to a metallic return as a higher percentage of accumulation of earth currents is noticeable on receiving antenna of Figure 2 than from a metallic return, accountable for because of the condensor effect the grounded circuit affords.

I also prefer under certain conditions to sue a single antenna receiving wire in place of the closed loop shown in Figure 2. Under certain operation requirements I have found it expedient to have the transmission antenna elevated and carried on poles many feet above the earth, and in that case a different voltage and frequency was necessary to accumulate earth currents along the transmission antenna 14.

What I claim is:

1, In an Electrical Power Accumulator, a synchronized oscillatory circuit parallel with and in proximity to earth adapted to accumulate and utilize current generated by the earth.

2, In an Electrical Power Accumulator, a synchronized oscillatory circuit having the same frequency as the earth generated currents, said circuit parallel with and in proximity to the earth, said circuit adapted to accumulate and utilize current generated by the earth rotating on its axis.

3, In an electrical power Accumulator, a high frequency oscillatory generator grounded on one side with a connected antenna grounded at the further end through a spark gap, said antenna adapted to oscillate and radiate earth accumulated currents.

4, In an Electrical power Accumulator, a high frequency oscillatory generator grounded on one side with a connected antenna grounded at further end through a spark gap, said antenna adapted to oscillate and radiate earth accumulated currents and receiving means adapted to utilize said radiated earth accumulated currents, said means synchronized to pick up and utilize said radiated earth currents.

5, In an Electrical Power Accumulator, a synchronized oscillatory circuit parallel with and in proximity to earth adapted to accumulate and utilize current generated by the earth using synchronized means to pick up at a distance therefrom said radiated earth currents.

6, In an Electrical Power Accumulator, a synchronized oscillatory circuit having same frequency as the earth generated currents, said oscillatory circuit parallel with and in proximity to the earth, said oscillatory circuit adapted to accumulate and radiate current generated by the earth rotating on its axis and means adapted to utilize said synchronized accumulated earth currents, picked up at a distance from said oscillatory radiating circuit.

Lord RAYLEIGH

Active Nitrogen

Lord Rayleigh // William Strutt

In the 1930s and 40s, Lord Rayleigh reported to the Royal Society of London about his experiments with active (electrically excited) nitrogen and other gases. In 1940, he gave an account of his discovery of the anomalous energy released by active nitrogen at reduced pressure. He explained the anomaly in the abstract of his second paper published on the subject in 1940, thus:

"The amount of energy collected from the gas was surprisingly large, and is difficult to reconcile with existing theories of the nature of active nitrogen. In some cases the energy was as high as 10 eV for every molecule of nitrogen that passed through the discharge. [Later research raised the energy level up to 223 eV/mol.] This quantity of energy can with difficulty be accounted for by dissociation, even if it occurred to the extent of 100%."

In addition, he showed that "pieces of sheet gold, copper, silver or platinum may be made red hot or even melted by exposing them to active nitrogen produced in a low-pressure discharge. The nitrogen gives up its energy to the metal, which remains unacted on... Gold was selected as the most active metal...."

"The energy radiated as after-glow under favourable conditions is only of the order of 10^{-3} of the energy collected by the metal." This extra energy was about 1000 times the amount radiated by active nitrogen alone under the most favorable experimental conditions he devised.

"The after-glow consists chiefly of three heads of the first positive nitrogen bands. The maximum luminosity of the visual spectrum is at 5550, and the wavelengths of the bands in question and their luminosities in terms of this maximum are as follows:

Colour	Wave-length	Luminosity
Green	5371	0.930
Yellow	5802	0.870
Red	6251	0.321

"The question may be raised whether the 'a' system of bands have great energy in the infra-red... We may fairly infer [based on the work of Kichlu and Acharya (1929)] that the infra-red contribution is not important."

Rayleigh calculated the "theoretical maximum for integrated nitrogen after-glow" to be 4.82 x 10^2 candle-sec., and used this number as a standard datum for his studies. He noted:

"Although the luminosity in the bulb remains visible for hours, its equivalent duration at the initial intensity is only about 3 seconds. The prolonged faint luminosity contributes very little to the total."

Lord Rayleigh also studied the effects of increasing and reducing the concentration of nitrogen, injecting active nitrogen into inert nitrogen, temperature change, other gases and metals, and the "wall-effect".

In 1946, Rayleigh published a sequel study on "The surprising amount of energy which can be collected from gases after the electric discharge has passed." In the abstract of the article, he stated:

"A new form of experiment is now described... in which... a platinum strip is kept hot by periodic discharges... [B]y making the experiment (1) with the Pt exposed to the gas and (2) with the Pt protected by a thin glass sheath it is possible to determine what part of the total energy is to be attributed to catalytic action of the discharge products. This amount of energy was found to be very great. Reckoning in electron volts per molecule of gas present it increased rapidly as the gas pressure was lowered and at the lowest pressure used it rose as high as 223 eV/mol. Results of the same order were obtained with other gases, so it is not clear that the glow of active nitrogen is the essential condition. This great liberation of energy much exceeds what can be explained by dissociation of the molecules and single ionization of every atom which results, which would only afford 36 eV." (Figure 1)

"To produce the electrodeless discharges, the same oil condensor was used as in my previous work. It was charged with an induction coil with a slow mercury break... An ebonite wheel with a conducting segment is mounted on an axle which is inclined at 45^o to the horizontal. This wheel is immersed in Hg and makes and breaks contact once a revolution. The Hg is covered with a layer of alcohol...

"Along the axis [of the discharge vessel] there is stretched a Pt strip, over which a glass sheath can be slipped. The Pt can be heated by a current from a battery, and the tube is wound with a wire coil, which is used to excite the electrodeless discharge. When the discharge passes, the Pt strip gets heated, and its resistance increases. This is attributed partly to the direct-heating action of the discharge, and partly to the action of the Pt strip in catalyzing the discharge products (ions and dissociated atoms?).

"During an experiment, the Pt strip is kept at an arbitrary but constant resistance of R ohms. For this purpose it is made one arm of a Wheatstone's bridge, and the current is adjusted to heat the strip until the given resistance is attained. The current (C_1 amp.) is measured. Then the glass sheath is slipped into position, so as to screen the wire from dissociation products. A larger current (C_2 amp.) must now be passed to restore the resistance to its standard value of R ohms. The energy given up to the Pt wire by the dissociation products is $(C_2^2-C_1^2)\,Rt$ W-sec., when t is the time interval in seconds from one discharge to the next.

"This energy is derived from, and therefore is contained in, the gas volume v at pressure p cm. of Hg.

"Thus the energy per unit volume reckoned as at atmospheric pressure is

$$(C_2^2-C_1^2)\,Rt \text{ x } 76 \text{ / W-sec./cc. } vp$$

"In a typical experiment, when the conditions were adjusted to get the best effect at the chosen pressure, $C_1 = 0.78$ amp., $C_2 = 1.73$ amp., $R = 0.470$ ohm, $t = 0.25$ sec., $v = 19$ cc., $p = 2.6 \text{ x } 10^{-3}$ cm. Hg. In this case the energy is 432 W-sec./cc. as at N.T.P., or 98.5 eV/mol. of N present."

Rayleigh calculated that the probable length of travel of the molecules of nitrogen, from the point where they received energy to central strip where they gave it up, to be about 1 cm. (the radius of the discharge vessel).

"The duration of the discharge (several oscillations) was estimated... and found to be $3.76 \text{ x } 10^{-6}$ sec.. This requires the molecule considered to have a velocity of... $5 \text{ x } 10^5$ cm./sec.. Now the molecular velocity of nitrogen is 5 x 10^4 cm./sec. at 273 K. To raise it 10 times, the absolute temperature must be increased 100 times, i.e. to the temperature of the hottest stars. It seems clear, therefore, that a molecule could not travel fast enough to give up energy to the Pt strip more than once during the short duration of a discharge. If not, it must carry 98.5 eV at one time and it is not easy to see how according to current ideas how it could do this. The energy of dissociation of nitrogen is 7.4 (?) V, and this, together with the ionization of both the atoms, would only afford 7.4 + 2 x 14.5 V or 36 V. Considering that the discharge gives a band spectrum and not a line spectrum, the idea of complete dissociation and ionization is somewhat fantastic; but even if we make this assumption the difficulty remains.

"There appears to be no advantage in increasing the number of turns to the maximum, and close winding was inconvenient, because the coil showed a tendency to spark over. A coil having 26.5 turns was used in further experiments, as being about the useful maximum.

"The pressure was then varied, leaving the other conditions unaltered:

[Table not shown in the online version]

"It appears, therefore, that the energy per molecule increases very greatly as the pressure is diminished.

"It was of interest to see whether these very large values of the energy per molecule are peculiar to nitrogen, or whether they would be found in other gases also. A few results only are available at present:

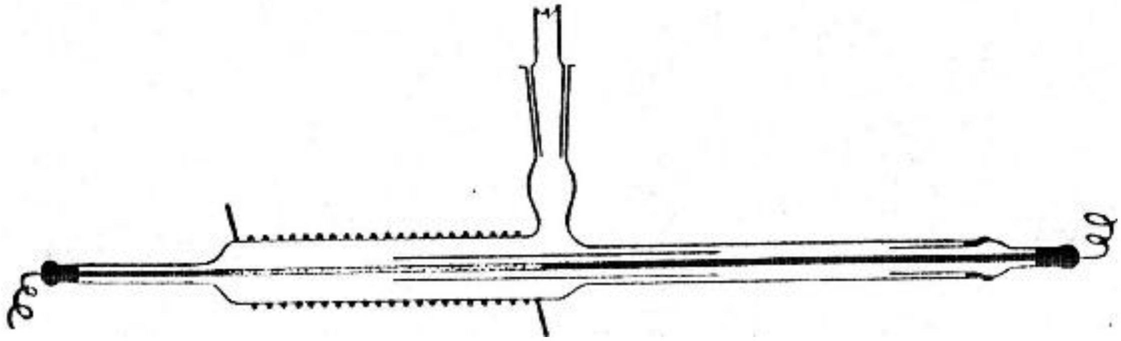
Gas	*P*, pressure (cm.)	W-sec./cc.	eV/mol.
Oxygen	2.6 x 10^{-3}	432	98.5
Hydrogen	4.3 x 10^{-3}	470	107
Nitrogen	2.6 x 10^{-3}	309	70.6

"These are of the same order of magnitude as the results for nitrogen, one of which is repeated for convenience of reference."

The high energy output of this relatively simple experiment suggests that a convenient source of "free energy" might be available therein. Aside from that notion, despite repeated reading of Rayleigh's articles on active nitrogen, this writer remains baffled as to how active N, O or H could possibly form Mass 5 as claimed by Ron Kovac (*Infinite Energy* #15/16, July-Nov. 1997 and elsewhere). Kovac does not explain the reaction pathway(s) involved.

Rayleigh: *Proc. Roy Soc.* A. 176: 1, 16 (28 August 1940); *ibid.*, 182: 296-299 (1946); *ibid.*, 151:567-584 (1935)

Lord Rayleigh's Active Nitrogen Experiment



Chemical Abstracts (1942) :

Proc. Roy. Soc. (London) A-180: 123-139 (1942) ~ "Further Studies on Active Nitrogen: Experiments to show that traces of oxygen or other impurity affect primarily the walls of the vessel, and not the phenomena in the gas space."

When a minute O_2 tributary is added to the N_2 gas stream it takes longer to assert its action than the time needed to change the gas composition, which indicates that the effect on the O_2 tributary is on the walls of the tube. The fact that when the O_2 tributary is checked the action persists confirms this view. The O_2 modifies the glass wall favorably for the accumulation of active N. The restoration of the afterglow by a tributary O_2 stream is very marked with electrodeless discharges at 0.3 mm. An increase of intensity by a factor of 32 is achieved by the introduction of the O_2. The observed phenomena are complex and not easy to explain. The effect of treating the vessel is examined. Strong preliminary heating in vacuo makes a vessel destroy the afterglow, Heating in N_2 at atmospheric pressure has the same effect. Heating in O_2 at even 1 mm pressure restores the glow. The effects can be explained in terms of gas-layer formation or removal. The behavior of the gas away from the surface is different; in this case purity of N_2 favors the promotion of active N phenomena.

Ibid., pp. 140-150 ~ "The ionization associated with active nitrogen"

The ionization associated with afterglowing N is investigated thoroughly. The ionization is completely cut off if the test vessel is separated from the afterglow by a silica wall. The ionization is thus not produced by light (at least of wavelength greater than 1850 A). No increased current is observed when the surface action is such as to make a testing cathode red hot. This seems to exclude electron emission as the cause of the ionization. The ionization is nearly the same when the cathode is one of the common metals or a surface coated with meta-phosphoric acid, but a copper cathode, when clean, gives a much larger effect. It is concluded that the surface electron emission is small compared with the volume ionization of the gas space. The number of ion pairs generated and the number of photons emitted per cc at various stages of a decaying glow are measured. The number of photons is at first greater but at very low intensities the number of ions probably exceeds the number of photons. It is considered that different mechanisms are involved in the two processes. The admission of inert N_2 increases the instantaneous photon emission and also the instantaneous ionization. Evidence is produced which points to the fact that the ionization process and afterglow process are in some measure independent. The ionization potential of the N_2 molecule (15.51 v) is such that the energy attributed to active N_2 on spectroscopic grounds, as calculated from the emitted band spectrum, is open to suspicion. It is considered that previous attempts to explain active N_2 have laid too much stress on the spectroscopic aspect and have ignored the question of ionization. This was previously considered a subordinate phenomenon, but the work here shows that under some conditions ionization may involve as many atoms as the light emission.

Troy REED

Magnetic Motor

***Free Press*, Little Rock, AR (April 14-27, 1994)**

"Magnetic Miracle"

by

Bud Kenny

Inventor's design consumes no fuel, emits no fumes

Devices that have truly improved the human condition - such as electricity, the telephone and the airplane - were created by people who passionately believe their inventions would make the world a better place to live. Troy Reed of Tulsa, Oklahoma is such a person.

Reed has invented and patented a motor that consumes no fuel and emits no fumes. It is powerful enough to turn a 7,000-watt generator, which is enough electricity to run an average home. Production of the Reed Magnetic Motor for use by the general public may begin by year's end.

Reed, 57, has also invented an automobile called "Surge" that employs his new technology. Unlike a battery-powered car, Reed's Surge does not have to be plugged in to be recharged. The car recharges itself as it rolls down the highway at speeds of up to 85 miles an hour. Reed and actor Dennis Weaver, a cousin and inventor in the project, plan to make the first highway test-run of the car this summer.

Reed said he has been contacted about coverage of the test run by, among others, 20/20, 60 Minutes, Larry King Live, Primetime Live and CNN. A representative of CNN, Reed said, has already seen the car and might broadcast daily updates during the journey.

The idea for this technology came to Reed in a number of dreams and visions over the past 35 years. He said he got the first in 1959 while employed as a machinist making 70 cents an hour. Thirty years later, in 1989, he put those dreams to the test, turning a hand crank that put the first Reed Magnetic Motor in motion. That prototype was seven feet tall, weighed more than 500 pounds, had four moving parts and powered a 500-watt generator. His latest motor takes two car batteries to start (they are re-charged by the generator), is 20 inches high, weighs less than 200 pounds, has one moving part and runs a 7000-watt generator.

If Reed's motor works as well as he says it does, it would be a rather amazing technological breakthrough. After all, it would mean a person could live anywhere one wanted with all the comforts and never have to pay an electric bill. One would also be able to drive to work, or anywhere else, without consuming fuel. And best of all, one could do these things without polluting the environment.

Although most people have never heard of the Reed Magnetic Motor, it is well known in the science world. Since 1989 Reed and his motor have been featured at numerous international scientific conferences - the most recent on in Denver in March. Reed also has been written up in scientific journals and is included in the latest edition of Monuments of Mars, a book of inventors written by former NASA science writer Richard Hoagland.

If Reed has his way, his motor soon will no longer be a scientific curiosity. Currently he is in the final stages of granting a license to produce the motor to an American company and a company in India. Reed would not give the names of the companies because he said he is still "negotiating."

"I've been approached by lots of companies from all over the world," Reed said. "I wanted the company that builds this motor to be doing it for the same reason I developed it - to help mother earth."

Reed did say that the companies granted licenses would start producing the motors for the consumer almost immediately. "The technology is already there, it is just a matter of putting all together the right way to make it work," Reed said.

The 1989 prototype uses a horizontal shaft with several magnets on it. Above the shaft are four vertical spring-loaded pistons with a magnet on the end closest to the shaft. Turning the hand crank spins the horizontal shaft and the magnetic spring-loaded pistons move up and down to trigger the motion of the shaft and the magnetic force field. Once the shaft is put into motion, it continues to spin until a brake is applied.

Instead of moveable pistons, the latest model of the motor uses and electronic system and stationary magnets to start and control the motion of the shaft. Consequently, the only moving part in the motor is the horizontal shaft. In the current model, the shaft turns in bearings, but Reed said the mass-produced model will not have the bearings. Instead, the shaft will be magnetically suspended inside the motor casing. Suspending the shaft means there will be nothing to wear out, or make noise, Reed said.

Reed is aware inventions such as his often end up being shelved away from the consumer by a large oil company. So Reed said he has proceeded with caution. "Just like the companies that are going to produce these motors, I made sure that my investors were motivated for the right reasons," Reed said. "If they are only in it for the money, then I turned them away. On the other hand, if they share my desire to see this technology in the marketplace to help save the environment, then we made a deal."

Reed said he also has been careful in how he financed the development of his motor. He said he talked with other would-be world-saving inventors who were put out of business by the government for violating interstate security exchange laws. "They needed capital to develop their ideas, so they sold their investors stock," Reed said. "It always takes longer to develop something like this than you think it will. So when it came time to make good on that stock, they couldn't do it."

When Reed needed capital, instead of issuing stock he gave his investors promissory notes that were contingent on his invention eventually making it to market. Once the motors are available to the public, Reed said he will offer his investors the option of "holding the promissory notes or exchanging them for stock."

However, the federal government is aware of what is going on at Reed Technologies. In fact, Reed said NASA has volunteered to test the motor.

Reed estimated it will cost about $3,500 per motor to mass produce his invention.

Bud Kenny of Hot Springs is scheduled to begin a 15-year world-walking tour on June 5 (see related story page 23). Kenny will live in a small house on wheels, which will be pulled by two mules. Electricity for the house will be provided by alternative electrical generating systems such as solar panels and a pedal generator that will store power from the rotation of Dylan's wheels. Kenny's first stop on his world tour will be around the first of August in Tulsa, where Reed will help Kenny develop the electrical system for the home.

---

http://control-alt-delete.ca/v-web/bulletin/bb/viewtopic.php?t=4249&

PostPosted: Fri Mar 17, 2006 12:14 pm
Post subject: Reply with quote

The problem that happened is that Troy (Dad) and Evelyn his wife at the time and VP of the company got an device while dealing with a company to manufacture the base product.
Of coarse egos got in the way along with financial problems.

Some of the technology did make it into the EZGO golf cart. A lot of other issue between Reed Technology’s and other company that where in negotiations.

Now for an update Reed Technology is Evelyn and she I think has moved to Costa Rica.

Dad has been working on some other project that may someday come out. As for me I had to go back to work to make a living but in the back of my mind I still want to built the second generation of the magnetic motor that was named the Mach II which I still have the original plans I drew up so 10 years ago. The Mach II was designed to have around 400 HP at 1500 RPMs. I am listed as the co inventor of this motor and maybe some day I can get back to it. Many people in the “Free energy” groups like Richard has seen the base plans for this next generation motor.

But with the issue that happened who know when this project will continue.

Sorry to all of you that was involved and where let down.

Thanks for your understanding,

Mike

Unidentified source ---

A new free energy magnet motor is coming on the scene. Troy Reed of Tulsa, OK has developed a permanent magnet device that produces free energy. It has two sets of stationary magnets and two sets of magnets mounted on freely turning disks. Spring-type injector pins are used to keep the motor turning at a constant RPM (about 500) as well as to overcome magnetic attraction. The device is started using a normal starter motor and then runs freely and continues to produce energy. For more information contact Reed Magnetic Motor, Inc., POB 700395, Tulsa, OK 74170, or call 918-743-1112.

---

www.geocities.com/area51/shadowlands/6583/project114.html

Excerpt from:

"A Review Of Zero Point Energy And Free Energy Theory, Progress, And Devices"

by

Patrick G. Bailey, Ph. D.

P.O. Box 201, Los Altos, CA 94023-0201

The Reed (1991) Magnetic Motor is an electromechanical device that Troy Reed says runs on magnetic power. The author has developed a small prototype and a larger unit that have both undergone several demonstrations and testing programs. He has also filed for a Patent with the Patent Office and the Foreign PTO/EPO. In his design, eight permanent magnets are placed on each of four disks. Two outer disks remain stationary while the two inner ones are mounted on a common shaft and are allowed to turn freely. Videotapes and other information are available.

USP Appln. # 2003 066830

(4-10-2003)

Magnetic Heater Apparatus and Method

Reed, Troy; *(Skiatook, OK)***; Lunneborg, Tim**; *(Wahpeton, ND)***; Loll, Kevin**; *(Wahpeton, ND)***; Dimmer, Paul Gene**; *(Wahpeton, ND)***; Thomas, James Ronald**; *(Battle Lake, MN)***; Thomas, Neil Howard**; *(Brookings, SD)*

U.S. Current Class: 219/672; 219/628
Intl Cl.: H05B 006/10
Correspondence: MERCHANT & GOULD PC, P.O. BOX 2903, MINNEAPOLIS, MN

55402-0903
Assignee: MagTec LLC, Fargo ND

Abstract --- An apparatus and method for generating heat, in particular for heating a fluid. The apparatus includes a frame, with at least one permanent magnet fixedly mounted to the frame. An electrically conductive member is disposed proximate the permanent magnets. The magnetic field of the magnets upon the conductive member is made to vary cyclically. Typically either the permanent magnets, the conductive member, or both are movable with respect to one another. Relative motion of the conductive member and the magnets causes the magnetic field experienced by the conductive member to vary, which causes it to become hot. The total heat energy generated in the conductive member may exceed the total energy applied to the apparatus to produce the varying magnetic field. The apparatus may include a fluid path proximate the conductive member. Fluid in the fluid path receives heat from the conductive member. The apparatus may also include a mounting member for mounting the conductive member, a drive mechanism for moving the conductive member, and a fluid driver for driving fluid within the fluid path. The method includes the steps of either an electrically conductive member, a permanent magnet proximate the conductive member, or both so as to heat the conductive member. The method may include the step of passing a fluid through a fluid path proximate the conductive member such that the fluid absorbs heat from the conductive member.

Description

BACKGROUND OF THE INVENTION

[0001] The claimed invention relates to an apparatus and method for generating heat using magnets. More particularly, the claimed invention relates to an apparatus and method for generating heat using magnets, in particular permanent magnets, and transferring the heat to a working fluid.

[0002] A variety of methods and devices for heating fluids are known. Most conventional methods for heating fluids involve either combustion or resistive heating. However, neither of these approaches is entirely satisfactory.

[0003] Heating fluids by combustion has been known since antiquity. Essentially, a flame is produced, and is placed proximate the fluid to be heated. In some applications, the flame is applied directly to the fluid, for example when air is blown across a flame in a conventional gas furnace. In other applications, the flame is applied to a heat sink or heat conductor, for example when a metal tank is heated over a flame in a conventional water heater.

[0004] Many variations of this basic approach are known. However, they share several common disadvantages. First, flame is inherently dangerous. Flammable materials must be kept away from the flames in order to prevent the flame from spreading. Generally, this means any flame heating device must be made of non-flammable materials, and must be built in such a way as to prevent the entry of any flammable materials into the vicinity of the flame.

[0005] In addition, any flame source requires a steady flow of fuel. This requires fuel lines, tanks, or similar structures, which can prove inconvenient in certain applications. In addition, fuel lines and tanks may present a fire or explosion hazard.

[0006] Similarly, flames require a steady flow of oxygen. Commonly oxygen is furnished via a blower that provides a flow of air to the flame. However, for certain applications, for example heating liquids, it is difficult or inconvenient to provide a reliable source of air.

[0007] Furthermore, flames produce various combustion products, many of which present a nuisance or a hazard. Soot build-up is common in conventional flame-based heating systems, and as a result such systems require regular cleaning. More seriously, flames are notorious for producing potentially toxic gases, such as carbon monoxide. Care must be taken in the design of flame-based heating systems to avoid the production of such gases, or to vent them away from areas used by people and animals.

[0008] In addition, many combustion byproducts are environmentally destructive. This is especially true when combustion is chemically incomplete, for reasons such as poor fuel mixing, low burn temperature, etc. In such cases, a variety of environmentally hazardous compounds may be produced. Furthermore, nearly all fuels produce so-called "greenhouse gases" during combustion, most notably carbon dioxide, even when combustion is relatively "clean". Although carbon dioxide and other greenhouse gases are not necessarily directly harmful to people in small quantities, production of such gases is generally considered a disadvantage, in that they are widely believed to contribute to global climate change.

[0009] Also, many conventional flame-based heating systems operate by generating one or more extremely high-temperature point-sources of heat. That is, the active components of the systems become extremely hot, in many cases hot enough to cause injury or damage materials not specially designed for high heat tolerance. Thus people, as well as plastics, wood, paper, etc. must be kept away from the active components of a flame-based heating system in order to avoid a risk of injury or damage.

[0010] In addition, conventional flame-based heating systems generally require numerous components such as valves, tubing, flame nozzles, etc. that are either in or near the fluid to be heated. For generally non-reactive fluids, such as air, this is of limited concern. However, if corrosive or otherwise hazardous fluids are to be heated, it is typically necessary to either design the system specifically to avoid direct contact with the fluid to be heated, or to use components and materials that are resistant to the fluid in question. For complicated parts, such as valves and nozzles, this can present manufacturing and maintenance difficulties.

[0011] Resistive heating of fluids is also well-known. Conventional systems operate by passing an electrical current through a heating element with a high electrical resistance. The current flow generates heat within the heating element, and the heat is then transferred directly or indirectly to a fluid.

[0012] Although resistive heating avoids certain difficulties inherent in flame-based systems, it also suffers from several disadvantages. Though resistive heating systems do not require either fuel or oxygen, they do require that electricity be provided to the heating elements. Like fuel lines and air fans, electrical wiring may be difficult or inconvenient for certain applications.

[0013] Similarly, many conventional resistive heating systems operate by generating one or more extremely high-temperature point-sources of heat. Typically, the operating current is passed through one or more relatively small heating elements. The elements thus become extremely hot. In many cases the heating elements are heated to the point of incandescence, and may reach several thousand degrees Fahrenheit. People, plastics, wood, paper, even some types of metal and glass must be kept away from the active components of a resistive heating system in order to avoid a risk of injury or damage.

[0014] Furthermore, such temperatures exceed the ignition temperatures of certain flammable gasses and vapors, so such substances must also be kept away from the heating elements and other active components of a resistive heating system. If the presence of combustible gasses and vapors cannot be avoided, the active components must be sealed in a gas-tight enclosure to prevent fire or explosion.

[0015] In addition, resistive heating, depending as it does on transmission of a substantial electric current, poses an inherent danger of electric shock. Arcing and sparking to and from electrically energized components is a significant risk. In addition, applications that involve potentially conductive fluids, in particular water, are of special concern with resistive heating devices. The presence of such conductive fluids in or near current paths can cause short-circuits that may damage the device or harm persons or property nearby.

[0016] Furthermore, resistive heating systems are perhaps even more susceptible to corrosive or otherwise degrading fluids than flame-based systems. This is particularly the case with the heating elements. Heating elements are typically small, and are thus especially susceptible to corrosion by virtue of a high ratio of exposed area to their total volume. Heating elements are also commonly directly exposed to or directly immersed in the fluid to be heated. Furthermore, the difficulties in making heating elements corrosion resistant are increased because heating elements must also survive extremely high temperatures, and thus the materials, structures, and construction methods that may be used are limited.

SUMMARY OF THE INVENTION

[0017] It is the purpose of the claimed invention to overcome these difficulties, thereby providing an improved apparatus and method for generating heat.

[0018] It is more particularly the purpose of the claimed invention to provide an apparatus and method for heating a fluid that does not require fuel, oxygen, or electrical current delivered to the active heating components, and that does not pose dangers from localized high temperatures, fire, electric shock, or toxic byproducts.

[0019] The present invention relates to a ***magnetic heater*** mechanism for generating heat. It includes at least one electrically conductive member and at least one magnet disposed proximate to one another. The magnetic field exerted by the magnet upon the conductive member is made to vary cyclically. This causes the conductive member to become hot. One way of accomplishing this is to move at least one of the conductive member and the magnet cyclically relative to the other. The magnetic field exerted upon the conductive member by the magnet thus varies cyclically.

[0020] More particularly, the magnetic field at a given point on the conductive member changes, such that that point on the conductive member becomes heated. In some embodiments most or all of the conductive member will become heated in this fashion. However, it is only necessary that a single point of the conductive member be so heated.

[0021] The present invention also relates to a ***magnetic heater with such a magnetic heater*** mechanism therein. An embodiment of ***magnetic heater*** in accordance with the principles of the claimed invention includes at least one magnet and at least one electrically conductive member disposed proximate the at least one magnet, but not in direct contact therewith. In certain embodiments, the magnet may be conveniently mounted on a frame. At least one of the conductor and the magnet is cyclically movable in relation to the other.

[0022] In a preferred embodiment, the at least one magnet is a permanent magnet.

[0023] A fluid path is disposed in thermal communication with the conductive member.

[0024] The relative motions of the conductive member and the magnet may vary considerably. In certain embodiments, the conductive member and/or the magnet may rotate in relation to one another. In other embodiments, one or both of the conductive member and the magnet may oscillate with respect to one another. The type of cyclical motion is not critical.

[0025] When the conductive member and/or the magnet are cyclically moved, the magnetic field applied to the conductive member by the magnet varies cyclically at at least one point on the conductive member, which causes at least that point of the conductive member to become hot. The heating depends on the electrical conductivity of the conductive member, not the magnetic or physical properties. Thus it is not necessary that the conductive member be ferromagnetic, or that it have any particular magnetic properties. Likewise, it is not necessary that the conductive member be a particular shape or size.

[0026] Fluid flowing through the fluid path absorbs heat from the conductive member.

[0027] In certain embodiments, the amount of heat energy generated within the conductive member exceeds the total energy applied to produce the cyclically varying magnetic field.

[0028] It is noted that the physical process(es) responsible for heat generation within the claimed invention have not been definitively determined as of filing of this application. It is believed that inductive heating may be at least partially responsible. Although inductive heating is known per se, the efficiency of the claimed invention in producing heat, which may exceed 100% as normally measured, is both surprising and unknown.

[0029] In addition, a device according to the principles of the claimed invention may include a drive shaft on which to mount the conductive member or the magnet for convenient cyclical motion. It may also contain a motor or other drive mechanism for driving the shaft. It may further contain a fluid driving mechanism such as a pump or blower for forcing fluid through the fluid path so as to heat the fluid efficiently.

[0030] An apparatus in accordance with the principles of the claimed invention does not require that fuel, oxygen, or electrical power be provided directly to or used within the heater mechanism itself. The risks inherent in such provisions are thus avoided.

[0031] An apparatus in accordance with the principles of the claimed invention is not prone to electrical arcing or sparking, as there is no need to apply external electrical power directly to the conductive member or the magnet in order to generate heat.

[0032] As pointed out above, one possible source for the heat generated in the conductive member is magnetic induction. It is noted that magnetic induction involves the production and dissipation of electrical eddy currents. However, eddy currents within conductors generally present negligible risks of arcing and sparking, as they are not flowing from one component to another or across a substantial distance, but rather are moving only within a local area of the conductor itself. Furthermore, eddy currents, like other electrical currents, tend to follow the lowest resistance current path, which is typically within the conductor rather than through the surrounding environment. Thus, short circuits, arcing, and sparking are naturally inhibited. Even fluids considered to be relatively conductive, such as salt water, are normally much less conductive than typical conductive solids such as metals. Thus, sparking dangers may be avoided even if such conductive fluids are to be heated.

[0033] Likewise, an apparatus in accordance with the principles of the claimed invention does not require either a flame or a hot filament to generate heat, and does not require high voltages or currents in exposed components.

[0034] An apparatus in accordance with the principles of the claimed invention, having very few parts, may be readily constructed of materials that are resistant to extreme temperatures, corrosive environments, etc. As a result, an apparatus in accordance with the principles of the claimed invention lends itself to applications wherein such conditions are found.

[0035] An apparatus in accordance with the principles of the claimed invention furthermore does not require that any component thereof be heated to an extreme temperature in order to operate. The conductive member may be heated to a moderate temperature similar to the desired temperature of the fluid, without a loss of efficiency.

[0036] An apparatus in accordance with the principles of the claimed invention, not being subject to many of the risks associated with known flame-based heaters and resistive heaters, is particularly well suited for commercial and home applications, such as furnaces, space heaters, and water heaters. However, it will be appreciated that these applications are exemplary only, and that the claimed invention is not limited thereto.

[0037] Furthermore, an apparatus in accordance with the principles of the claimed invention does not produce waste gas, or indeed waste products of any sort, and in particular does not produce greenhouse gases or other environmentally dangerous substances. Likewise, it does not produce solid waste or particulates such as ash, soot, etc., and does not produce noxious or corrosive liquids or gases, i.e. sulfur dioxide, nitrogen oxides, sulfuric acid, etc. Therefore, its operation does not present an environmental hazard.

[0038] A method in accordance with the principles of the claimed invention includes the steps of rotating at least one conductive member proximate at least one magnet so as to heat the conductive member. A fluid may then be disposed proximate the conductive member, so as to absorb heat from the conductive member.

[0039] As noted, it is believed that magnetic induction may be at least partially responsible for the heat generated in a device in accordance with the claimed invention. It is noted that conventional inductive heating devices typically rely on electromagnets to generate magnetic fields. In a preferred embodiment of the claimed invention, permanent magnets are used instead.

[0040] However, alternate embodiments of the invention might include electromagnets. Although electromagnets have many of the same drawbacks as resistive heaters, in that they require an electrical current to be delivered directly to the heating element, and in that a device that uses electromagnets thus requires wiring and must be designed with consideration given to a risk of electrical shock, for certain embodiments it may be desirable to utilize electromagnets.

[0041] Permanent magnets are extremely simple in structure, and do not have moving parts, current paths, or other internal components. As a result, they are extremely reliable, and are physically, chemically, and thermally sturdy.

[0042] In addition, the use of permanent magnets in the claimed invention, combined with the lack of any other unavoidable need for electrical power, gas lines, waste disposal, etc. enables embodiments of the claimed invention to be utilized with little or no supporting infrastructure.

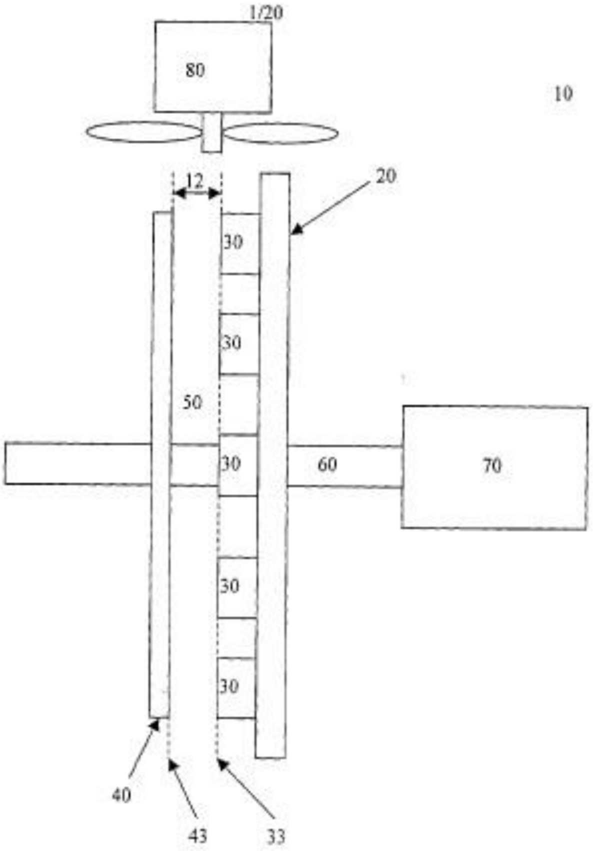
[0043] In addition, known devices utilizing magnetic inductive heating are substantially less efficient in generating heat than an apparatus in accordance with the principles of the claimed invention. For this reason, it is believed that some phenomenon other than or in addition to magnetic induction heating may be responsible for the heat generated in the claimed invention.

[0044] Thus, it is emphasized that the heating effect is not necessarily restricted to magnetic inductive heating.

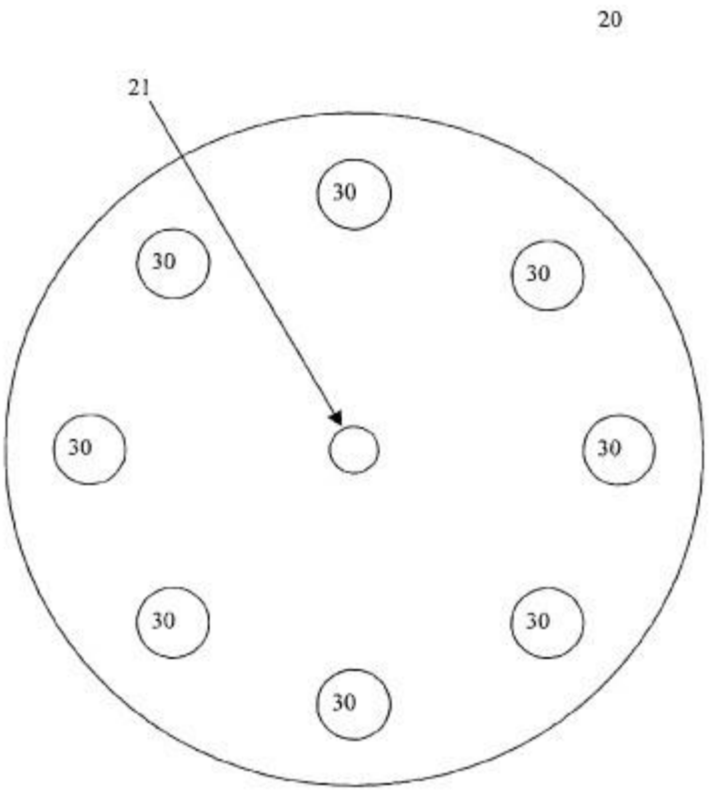
BRIEF DESCRIPTION OF THE DRAWINGS

[0045] Like reference numbers generally indicate corresponding elements in the figures.

[0046] FIG. 1 is a cross-sectional illustration of an embodiment of an apparatus in accordance with the principles of the claimed invention, adapted for rotary motion.

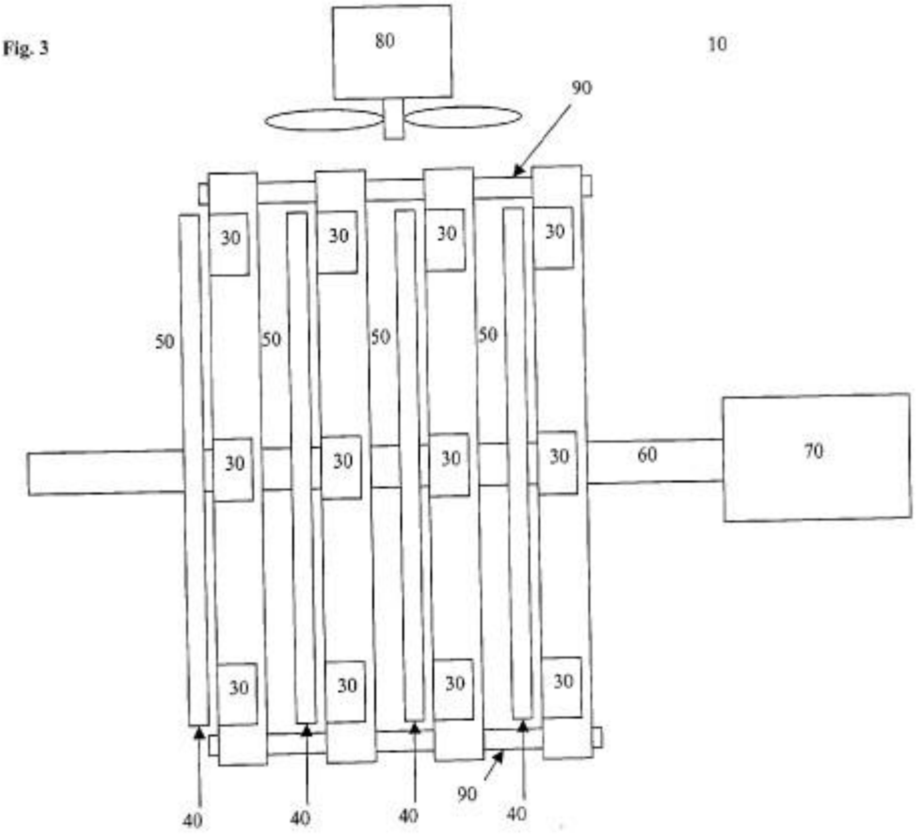


[0047] FIG. 2 is a perspective view of a frame with magnets therein from the apparatus illustrated in FIG. 1.

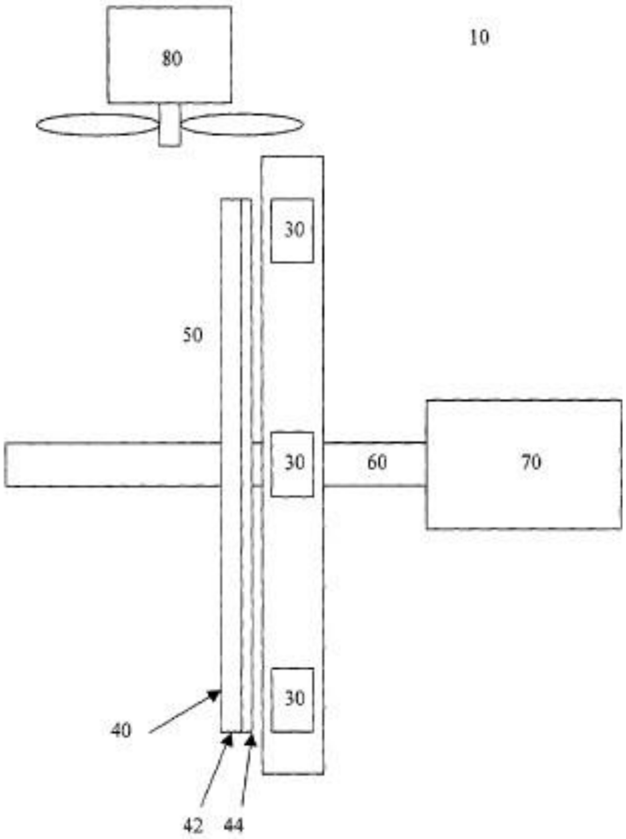


[0048] FIG. 3 is a cross-sectional illustration of another embodiment of an apparatus in accordance with the principles of the claimed invention, having multiple conductive members.

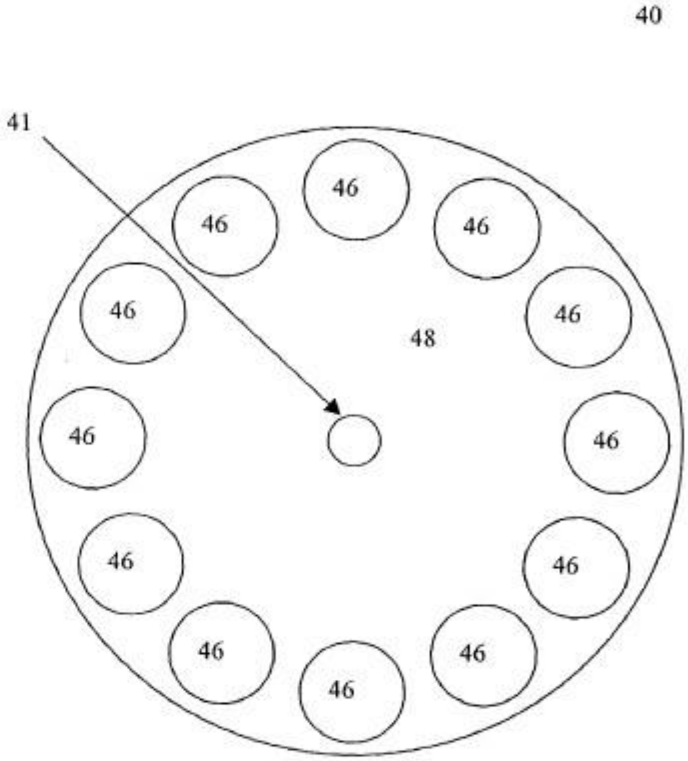
Fig. 3



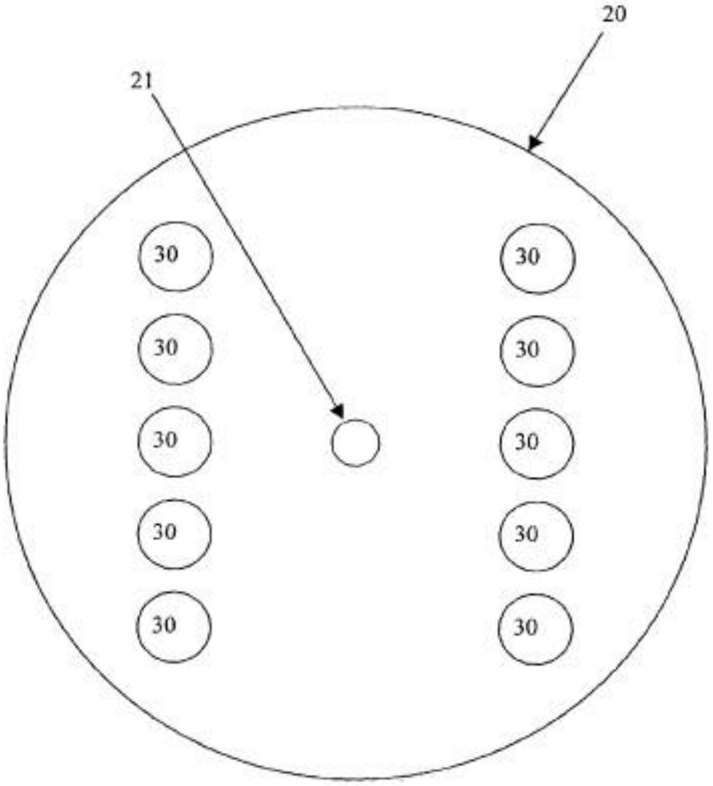
[0049] FIG. 4 is a cross-sectional illustration of another embodiment of an apparatus in accordance with the principles of the claimed invention, showing conductive and non-conductive layers.



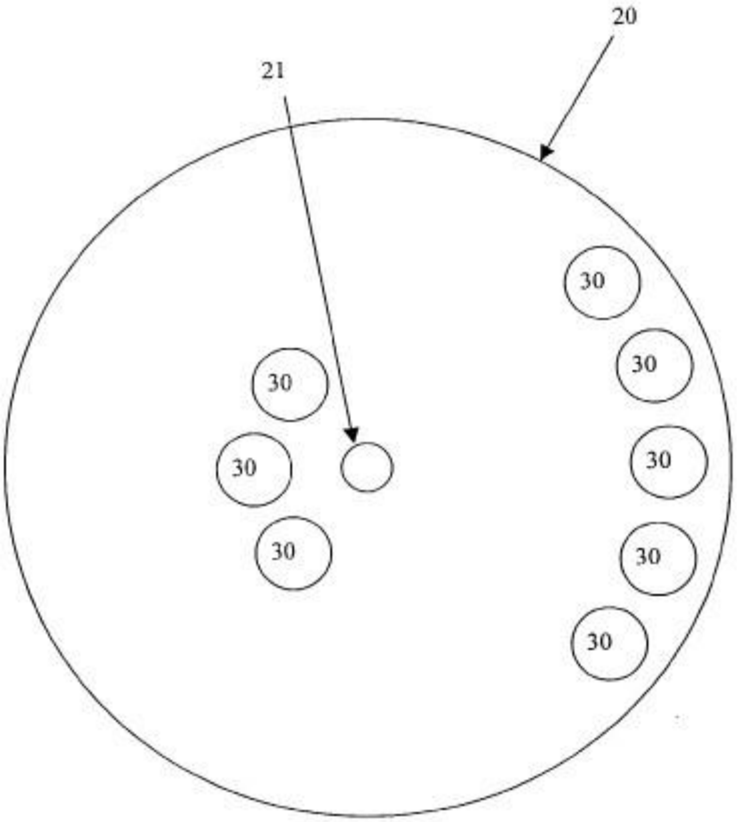
[0050] FIG. 5 is a perspective view of an embodiment of a conductive member in accordance with the principles of the claimed invention.



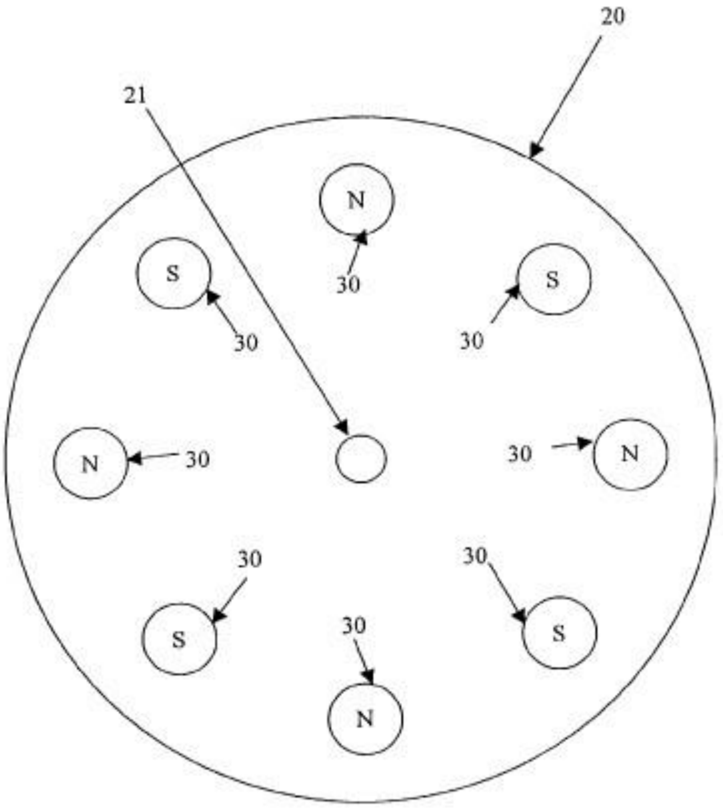
[0051] FIG. 6 is a perspective view of another embodiment of a frame with magnets therein.



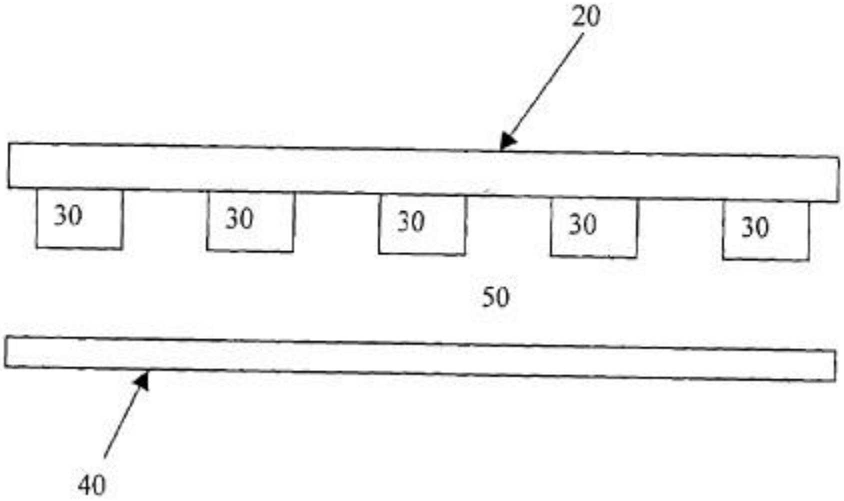
[0052] FIG. 7 is a perspective view of yet another embodiment of a frame with magnets therein.



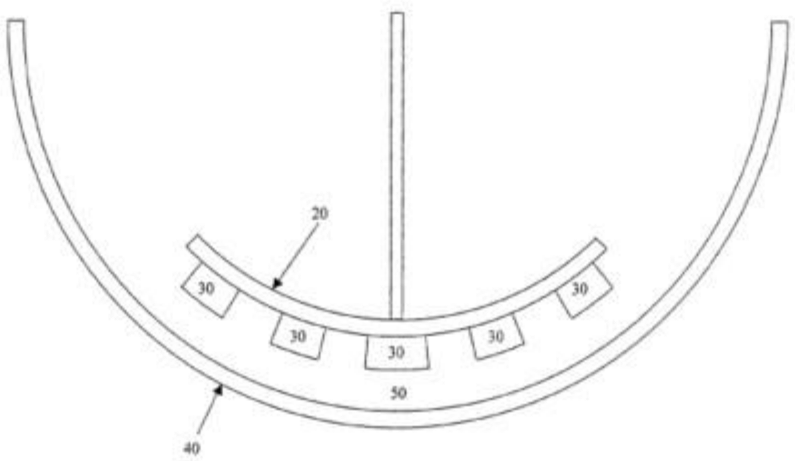
[0053] FIG. 8 is a perspective view of an embodiment of a frame with magnets therein similar to that in FIG. 2, showing magnet polarities.



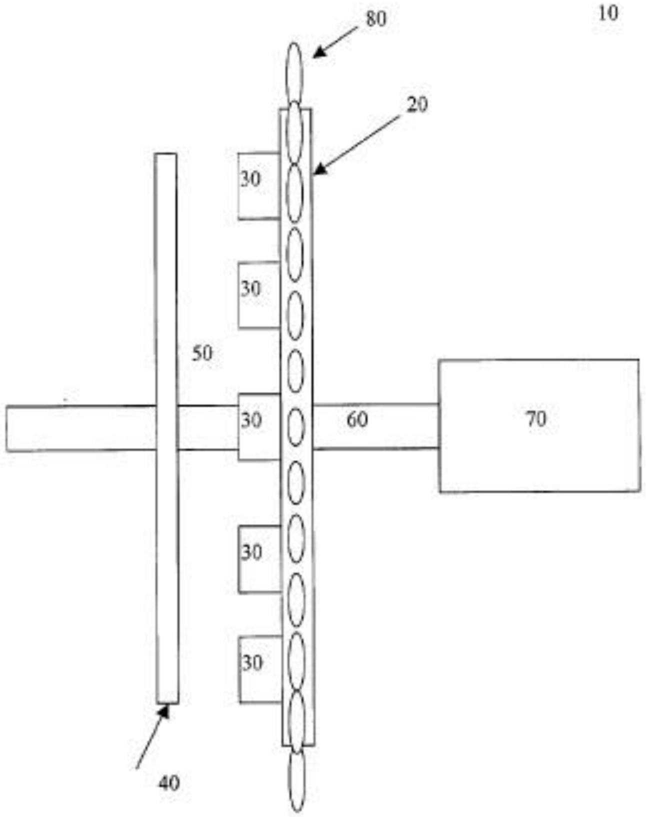
[0054] FIG. 9 is a cross-sectional illustration of another embodiment of an apparatus in accordance with the principles of the claimed invention, adapted for oscillatory motion.



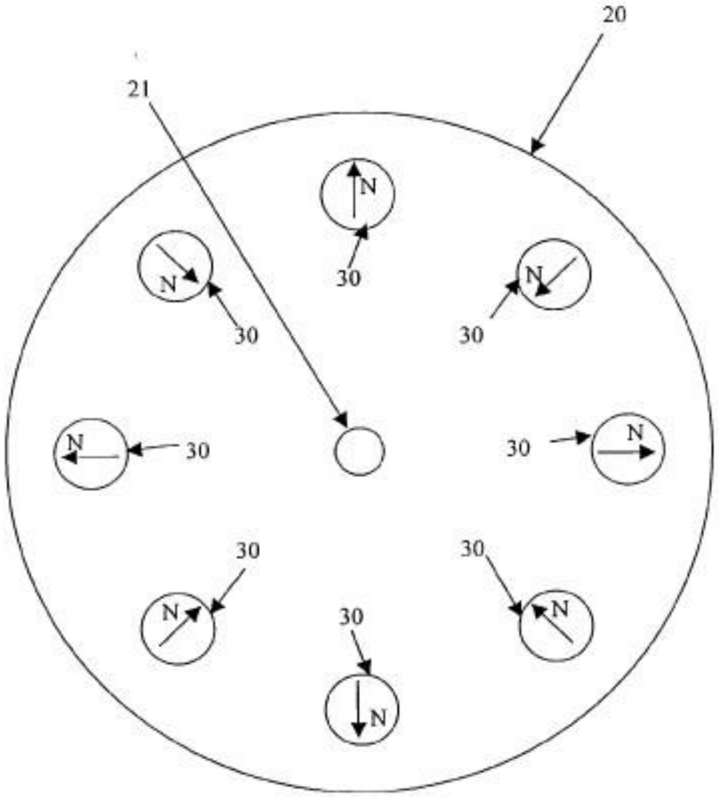
[0055] FIG. 10 is a cross-sectional illustration of yet another embodiment of an apparatus in accordance with the principles of the claimed invention, adapted for pendulum motion.



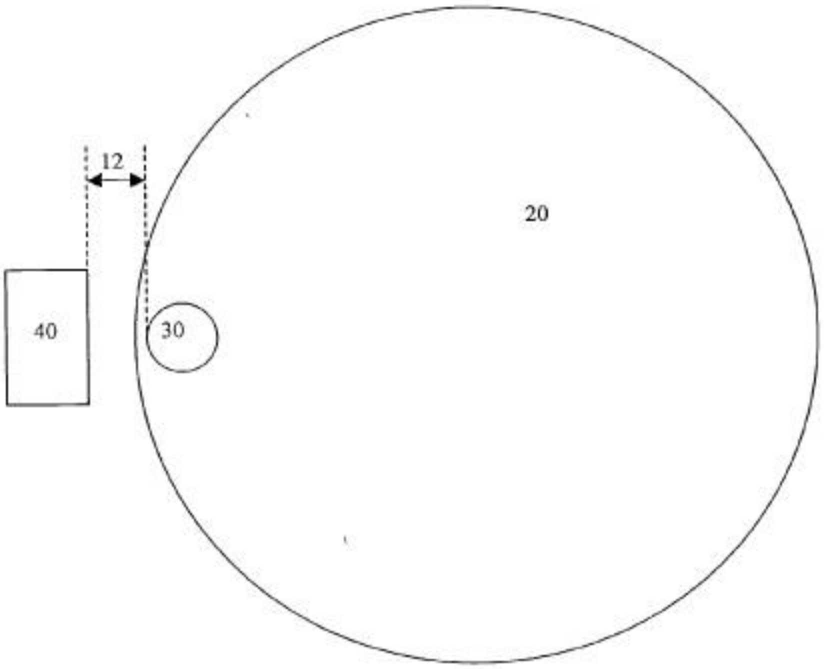
[0056] FIG. 11 is a cross-sectional illustration of still another embodiment of an apparatus in accordance with the principles of the claimed invention, adapted for rotary motion, having an integral fluid driver.



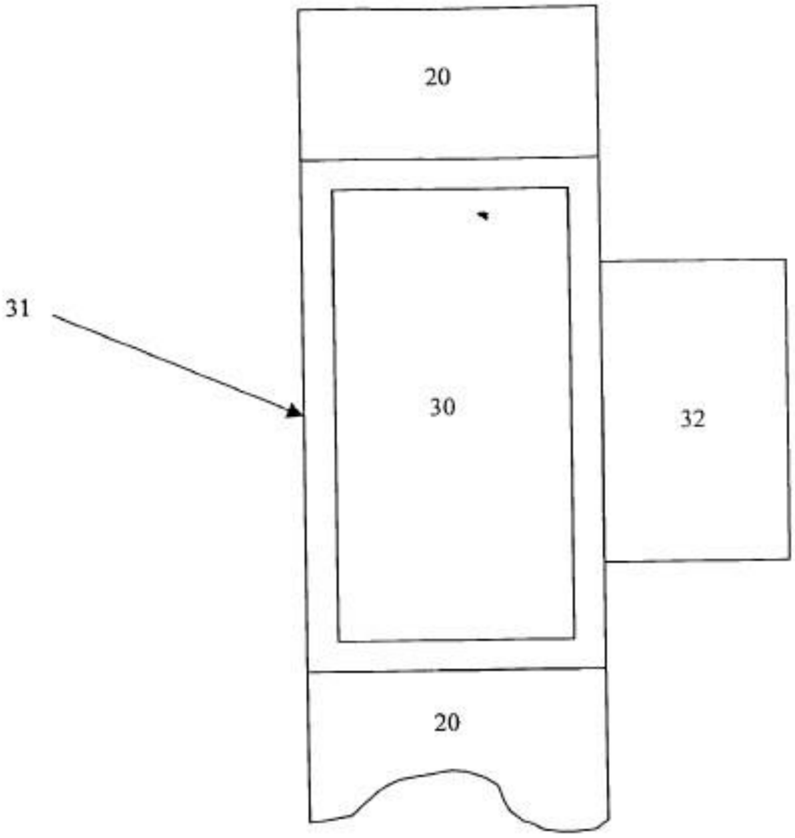
[0057] FIG. 12 is another perspective view of an embodiment of a frame with magnets therein similar to that in FIG. 2, showing magnet polarities different from those in FIG. 8.



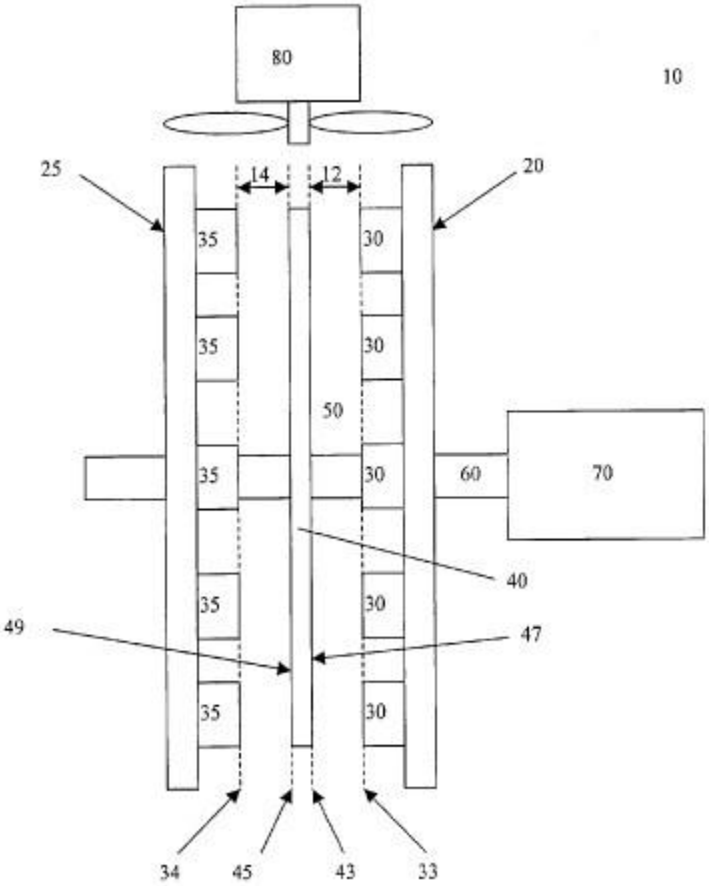
[0058] FIG. 13 is a perspective view of an embodiment of an apparatus in accordance with the principles of the claimed invention, wherein the spacing between the magnet and the conductive member varies.



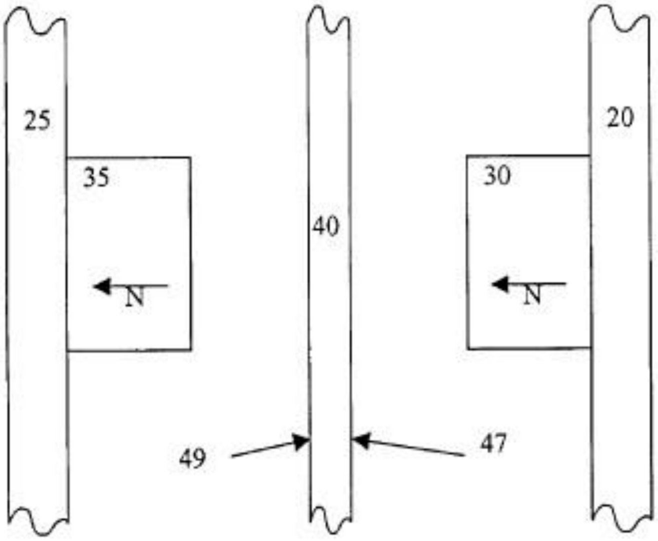
[0059] FIG. 14 is a magnified view of a magnet similar to one from FIG. 2.



[0060] FIG. 15 is a cross-sectional illustration of an embodiment of an apparatus in accordance with the principles of the claimed invention, wherein magnets are disposed on both sides of the conductive member.

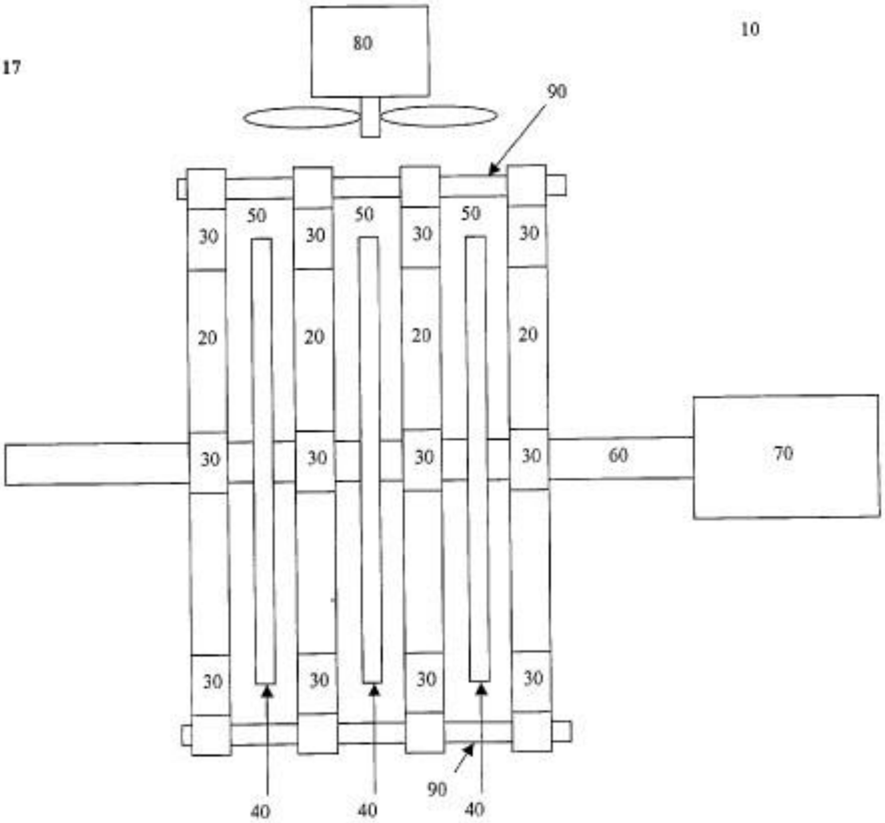


[0061] FIG. 16 is a magnified view of a portion of FIG. 15, showing exemplary magnet orientation.

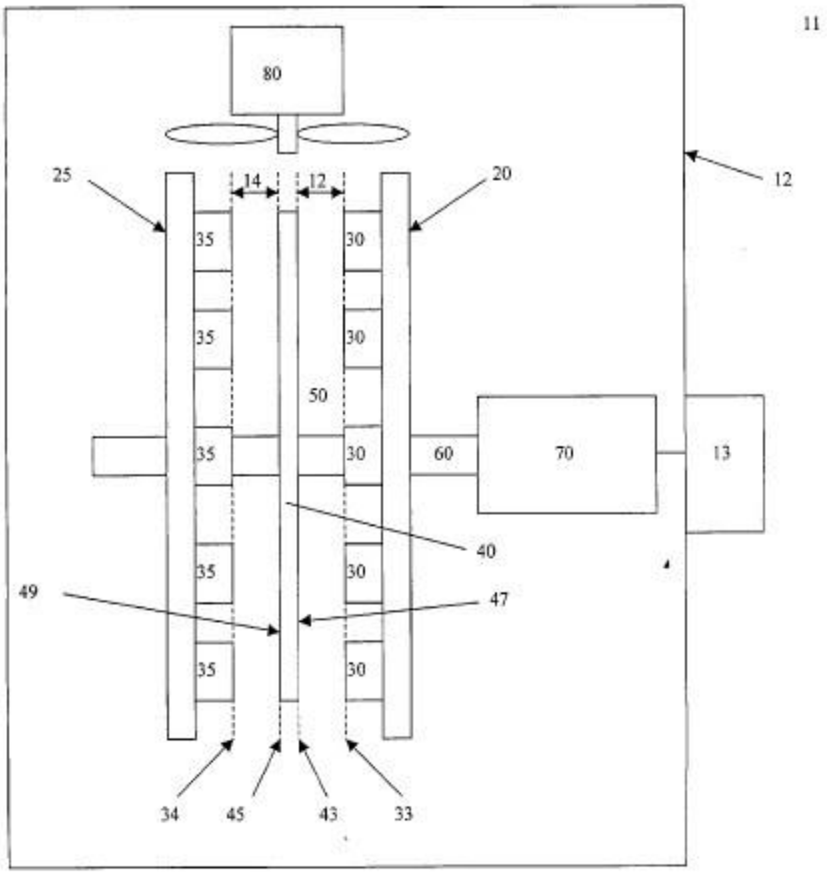


[0062] FIG. 17 is a cross-sectional illustration of an embodiment of an apparatus in accordance with the principles of the claimed invention, wherein magnets are disposed on both sides of the conductive member.

Fig. 17

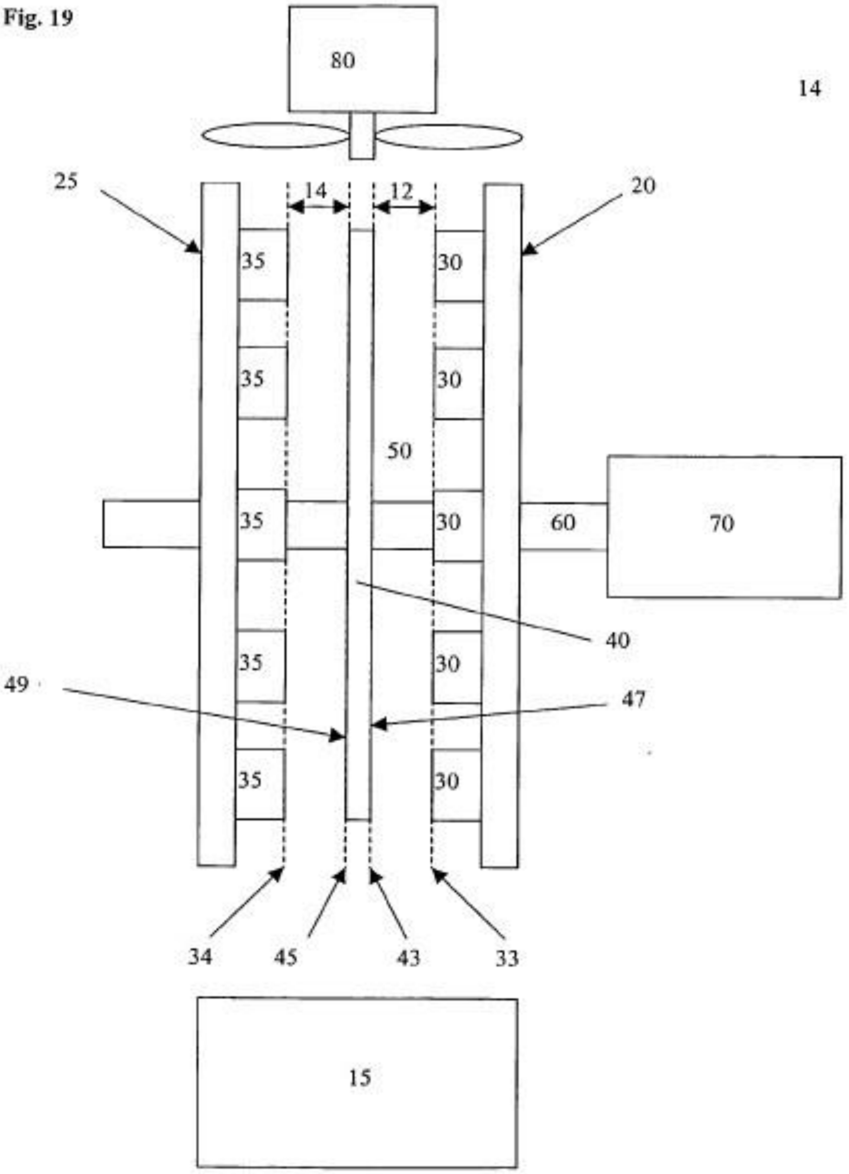


[0063] FIG. 18 is a cross-sectional illustration of an embodiment of a heater in accordance with the principles of the claimed invention.

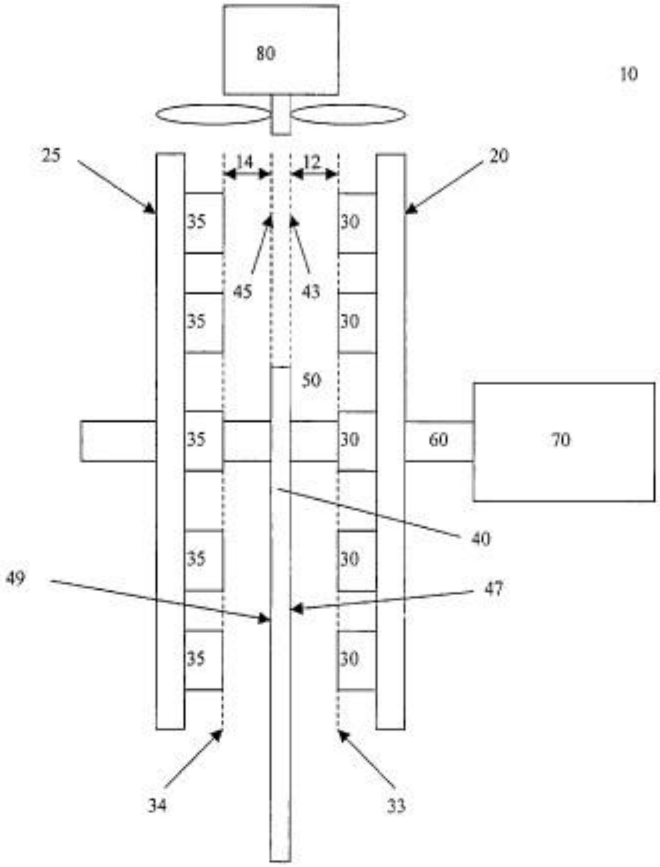


[0064] FIG. 19 is a schematic representation of a heat driven apparatus in accordance with the principles of the claimed invention.

Fig. 19



[0065] FIG. 20 shows an embodiment similar to that of FIG. 15, with the conductive member partially withdrawn.



DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0066] Referring to FIG. 1, an embodiment of an apparatus for magnetically generating heat 10 in accordance with the principles of the claimed invention includes a frame 20. The frame need not be electrically conductive or ferromagnetic, although it may be either or both. As illustrated in FIG. 3, the frame 20 is a circular, essentially solid plate. However, it will be appreciated by those knowledgeable in the art that this is exemplary only, and that other shapes, including but not limited to rectangles or open arrangements of struts, may be equally suitable.

[0067] In addition, the frame is itself exemplary only. It provides a convenient structure on which magnets 30 may be mounted.

[0068] Returning to FIG. 1, the apparatus includes at least one magnet 30 fixedly connected to the frame 20. As noted, in a preferred embodiment the at least one magnet 30 is a permanent magnet. A wide variety of magnets 30, permanent and otherwise, may be suitable.

[0069] In embodiments where permanent magnets are used, those embodiments are to some degree limited in their operation by the maximum effective operating temperature of the particular permanent magnets 30 that are used, i.e. if the magnets 30 overheat their magnetic field may decay. In a preferred embodiment using permanent magnets, the magnets 30 are high-temperature permanent magnets, such that they retain their magnetic fields at elevated temperatures. In a more preferred embodiment, the magnets 30 have an effective operating temperature of at least the boiling point of water. In a still more preferred embodiment, the magnets 30 have an effective operating temperature of at least 350.degree. F.

[0070] Rare earth magnets are known to be suitable for the purposes of the claimed invention. Samarium Cobalt magnets are known to be particularly suitable for purposes of the claimed invention. However, the use of both Samarium Cobalt magnets and rare earth magnets in general is exemplary only, and other permanent magnets may be equally suitable.

[0071] The "effective operating temperature", as the term is used in the art, is the point beyond which the magnetic field produced by a permanent magnet begins to degrade significantly. Some minor degradation in field strength may be measurable below this point. Likewise, the magnetic field may maintain at least some integrity above the effective operating temperature.

[0072] It is noted that the effective operating temperatures described herein are exemplary only. Permanent magnets with different effective operating temperatures may be equally suitable. In particular, it is noted that permanent magnets with higher effective operating temperatures may be available, or may become available, and that they may be equally suitable for use with the claimed invention.

[0073] In addition, it is emphasized that the device as a whole is not strictly limited to the operating temperatures of the magnets 30. In certain embodiments, other portions of the apparatus such as the conductive member 40 (see below) may reach higher temperatures than are experienced by the magnets 30, temperatures which may be well in excess of the maximum operating temperature of the magnets 30 themselves.

[0074] Furthermore, the magnets 30 may be protected from excess heat, as well as other potential hazards. For example, as illustrated in FIG. 14, which shows a cross-section of a magnet 30 and a portion of a frame 20 similar to that of FIG. 3 in cross-section and in greater detail, the magnet 30 may include a protective layer 31. Such a protective layer 31 can provide thermal protection, and/or structural and chemical protection. A variety of materials may be suitable for use as a protective layer 31, so long as they do not significantly reduce the propagation of the magnetic field of the magnet 30.

[0075] For certain embodiments, aluminum may be provide a suitable protective layer 31. It is noted that aluminum has a high reflectivity, thus inhibiting the absorption of heat by the magnet 30, and a high infrared emissivity, thus facilitating the rapid re-radiation of heat from the magnet 30. These factors combine to provide passive cooling for the magnet 30. In addition, aluminum is relatively durable, and so a protective layer 31 of aluminum serve to protect the magnet 30 physically. Likewise, aluminum is relatively impermeable, and thus may effectively seal the magnet 30 against any potential corrosive effects due to moisture, oxygen, fluid flowing through the fluid path 50 (see below), etc.

[0076] However, the use of aluminum is exemplary only, and a variety of other materials may be equally suitable. In particular, it is noted that multiple layers of material, rather than a single layer (i.e. of aluminum), may also be suitable. Likewise, the presence of a protective layer 31 is also exemplary only.

[0077] In addition, for certain embodiments, the apparatus may include an additional active or passive cooling mechanism 32 for the magnets 30. A wide variety of cooling mechanisms 32 may be suitable. For example, passive cooling mechanisms 32 may include, but are not limited to, heat sinks and radiator fins. Active cooling mechanisms 32 may include, but are not limited to, coolant loops and refrigeration units.

[0078] It is noted that the fluid flow path 50, as described below, may be configured to act as a cooling mechanism 32. Since in certain embodiments of the claimed invention it provides a mechanism for absorbing heat from the conductive member 40, it may be well suited for absorbing heat from the magnets 30 as well.

[0079] However, these particular cooling mechanisms 32, as well as the presence of a cooling mechanism at all, are exemplary only.

[0080] In a preferred embodiment, the apparatus includes a plurality of magnets 30. As illustrated in FIGS. 1 and 3, the apparatus has eight magnets 30, distributed symmetrically about the periphery of the frame 20. However, it will be appreciated by those knowledgeable in the art that this is exemplary only. A wide variety of sizes, shapes, numbers, and arrangements of magnets 30 may be equally suitable. In particular, asymmetrical arrangements of magnets 30 and arrangements of magnets 30 elsewhere than the periphery of the frame 20 may be suitable. For example, FIG. 6 shows an arrangement of magnets 30 in two straight rows. FIG. 7 shows an arrangement of magnets 30 with three in one arc near the center of the frame 20, and five in a larger arc near the periphery of the frame 20.

[0081] In addition, although the magnets 30 are illustrated as disk-shaped, this is exemplary only. Magnets in other shapes, including but not limited to rectangular, may be equally suitable. Furthermore, the magnets 30 need not all have the same shape.

[0082] Moreover, although an arrangement of small magnets 30 is convenient for certain applications, this is also exemplary only. Magnets 30 of sizes other than those shown may be equally suitable. Furthermore, in embodiments having more than one magnet 30, the magnets 30 need not be of the same size.

[0083] Furthermore, as illustrated in FIG. 1, the magnets 30 are fixed to a surface of the frame 20. However, this arrangement is exemplary only. As illustrated in FIG. 3, the magnets 30 may be recessed into the frame 20. The magnets 30 may be fully recessed as illustrated, such that the surfaces of the magnets 30 are flush with the surface of the frame 20, or the magnets 30 may be partially recessed into the frame 20. Alternatively, the magnets 30 may be fully enclosed within the frame 20, as illustrated in FIG. 4. A wide variety of arrangements of magnets 30 may be suitable, so long as the magnetic fields generated by the magnets 30 extend beyond the surface of the frame 20.

[0084] The magnets may be oriented in various manners. In a preferred embodiment, all of the magnets will be oriented with alternating polarity. That is, as shown in FIG. 8, some have their north poles N facing out of the paper, while those on either side have their south poles S facing out of the paper (and their north poles N facing into the paper). Such an arrangement is advantageous, for at least the reason that it produces a greater change in magnetic field intensity than would be the case if all of the magnets 30 were aligned in the same direction.

[0085] It is noted that such an arrangement may be equivalently described as having the north pole N of some of the magnets 30 point directly towards the conductive member 40, while having the north pole N of alternating magnets 30 point directly away from the conductive member 40.

[0086] However, such an arrangement is exemplary only. Other arrangements may be equally suitable. For example, it would also be possible to arrange the magnets 30 with alternating polarity such that the north pole of each magnet 30 is arranged opposite or nearly opposite that of its neighbors. FIG. 12 shows an example of such an arrangement. As shown therein, some of the magnets 30 have their north poles N pointing inward towards the center of the frame 20, while the magnets 30 on each side of them have their north poles N pointing outward.

[0087] Furthermore, it may also be advantageous to arrange magnets 30 with their north poles aligned in the same or nearly the same direction, or in some fashion other than the alternating fashions described above. In particular, it is emphasized that the alignment of the poles of the magnets 30 is not limited to either directly parallel with or directly perpendicular to the plane (if any) of the frame 20. The magnets 30 may be oriented in essentially any fashion, so long as a varying magnetic field results.

[0088] At least one electrically conductive member 40 is disposed proximate the magnets 30.

[0089] The magnets 30 and the conductive member 40 are arranged so that at least a portion of the conductive member 40 experiences a cyclically varying magnetic field from the magnets 30.

[0090] One way of producing the cyclically varying magnetic field is for at least one of the electrically conductive member 40 and the permanent magnets 30 are to be cyclically movable with respect to the other. Thus, as either the magnets 30 or the conductive member 40 or both move, the magnetic field experienced at different parts of the conductive member 40 will vary.

[0091] A variety of motions may be possible, so long as a cyclical variation in the magnetic field experienced by the conductive member 40 is produced.

[0092] As one suitable form of motion, the magnets 30 may be rotated with respect to the conductive member 40. Alternatively, the conductive member 40 may be rotated with respect to the magnets 30. Additionally, both the magnets 30 and the conductive member 40 may be rotated in different directions, or at least at different speeds, so as to produce relative motion between the two.

[0093] In the embodiment illustrated in FIG. 1, the magnets 30 are mounted to the frame 20 in a generally planar arrangement. Likewise in the embodiment illustrated in FIG. 1, the conductive member 40 is planar. The frame 20 is disposed with the plane 33 of the magnets 30 generally parallel to and proximate the plane 43 of the conductive member 40. Such an arrangement is advantageous, in that it is compact and convenient to operate, and also in that it allows for rapid, regular cyclical motion by rotating the frame 20 or the conductive member 40. However, it is exemplary only. Other arrangements, including but not limited to those described below, may be equally suitable.

[0094] It is noted that FIG. 1, as illustrated, is inclusive of all of the above embodiments. That is, as illustrated, the frame 20 with the magnets 30 thereon may rotate, or the conductive member 40 may rotate, or both. The structure, appearance, and function of the apparatus will be similar regardless of which elements rotate.

[0095] As noted above, other cyclical motions and other arrangements of components may be equally suitable.

[0096] For example, oscillating motions may be suitable.

[0097] More particularly, linear oscillating motions may be suitable for certain embodiments. As illustrated in FIG. 9, a planar frame 20 with magnets 30 thereon may be placed proximate a planar conductive member 40. Either or both of the frame 20 and the conductive member 40 may be moved cyclically in a non-rotational direction, i.e. side-to-side. Alternatively, one or both of the frame 20 and the conductive member 40 may be moved towards and away from each other.

[0098] Alternatively, in some embodiments the oscillating motion of a pendulum may be equally suitable. As illustrated in FIG. 10, a curved frame 20 with magnets 30 thereon may be placed proximate a conductive member 40 having a matching curve. The frame 20 may be set into motion as a pendulum, so as to produce cyclical variations in the magnetic field experienced by the conductive member 40.

[0099] A wide variety of other arrangements and motions may also be suitable, including but not limited to a cylinder or torus rotating inside a larger torus, a cylinder rotating proximate a flat plate, or a piston moving back and forth within a cylinder. In each case, either the magnets 30, the conductive member 40, or both may move.

[0100] It is noted that the term "cyclical variation", as used herein with regard to magnetic fields, refers broadly to any generally repetitive motion, wherein the magnetic field changes according to some cycle. For example, the magnetic field may rise and fall in intensity. As another example, the rise and fall of the magnetic field may change in field direction, i.e. change the angle of magnetic north, or even completely reverse polarity from north to south. Furthermore, the variations in the magnetic field may include a combination of changes in both field direction and intensity. The pattern of repetition may be simple or complex, and need not be precisely repeated with each cycle. That is, the frequency, amplitude, etc. of the variation may change from cycle to cycle. In addition, in embodiments wherein both the intensity and the direction of the field changes, it is not necessary for the intensity and the direction to change synchronously, or according to the same cycle.

[0101] The term "cyclical variation" as used herein with regard to physical motion, by extension, refers broadly to the physical motion used to produced the cyclical variation of the magnetic field. Likewise, it may have a pattern of repetition that is simple or complex, and that varies from cycle to cycle

[0102] It is also noted that the total magnetic force or field strength on the conductive member 40 need not change (although it may in certain embodiments). Rather, the local field at a given point on the conductive member 40 must change, in order for that point to be actively heated.

[0103] For example, if, in the embodiment illustrated in FIG. 1, the frame 20 rotates, the magnets do not approach or recede from the conductive member 40, since they are moving about an axis perpendicular to the plane 33 of the magnets 30 and the plane 43 of the conductive member 40. Thus, the total field strength does not change. However, the field at any given point on the conductive member 40 is constantly changing as the frame 20 rotates, i.e. as individual magnets approach and recede from that point.

[0104] Furthermore, it is emphasized that although many of the embodiments described herein utilize physical motion to produce a cyclically varying magnetic field, this is exemplary only. Arrangements for producing a cyclically varying magnetic field without physical motion, including but not limited to the use of variable electromagnets, may be equally suitable.

[0105] The cyclical change in the magnetic field causes the conductive member 40 to become hot. In terms of physical motions, with regard to FIG. 1, when the conductive member 40 is rotated with respect to the magnets 30, (or vice versa) the conductive member 40 becomes hot, because the magnetic field experienced by the conductive member 40 is varying.

[0106] It is emphasized that the conductive member 40 is electrically conductive; although it is heated by interacting with magnets 30, the conductive member 40 is not required to be ferromagnetic, or to have any other particular magnetic properties. Although it may be ferromagnetic, it is the electrical properties of the conductive member 40, not any magnetic properties, that are important.

[0107] In a preferred embodiment, the conductive member 40 is made of a durable, heat-tolerant, highly conductive material. In a more preferred embodiment, the conductive member 40 is made of metal. In a still more preferred embodiment, the conductive member 40 is made of copper, or a copper alloy. This is advantageous, as copper and many of its alloys are physically durable, highly conductive, and resistant to high temperatures. However, this is exemplary only, and other materials may be equally suitable for use in the conductive member 40.

[0108] As noted, a wide variety of embodiments may be possible in accordance with the principles of the claimed invention. However, from the point of view of operating efficiency (about which more is said later), the preferred embodiment is that illustrated in FIG. 15.

[0109] Therein, the conductive member 40 is configured with a first side 43 and a second side 45. A first frame 20 with a plurality of first magnets 30 thereon is disposed a first distance 12 away from the first side 43 of the conductive member 40. Similarly, a second frame 25 with a plurality of second magnets 35 thereon is disposed a second distance 14 away from the second side 45 of the conductive member 40.

[0110] It is preferred that the frames 20 and 25 are arranged such that the magnets 30 and 35 are aligned with one another to form pairs on each side of the conductive member 40. Likewise, it is preferred that, for embodiments wherein the frames 20 and 25 are movable, they are movable together so as to maintain the arrangement and keep the magnets 30 and 35 in pairs.

[0111] As shown in FIG. 16, it is furthermore preferred that for any pair of magnets 30 and 35, their polarities face in the same direction. Most preferably, the magnets 30 and 35 are aligned such that one magnet in the pair has its north pole facing directly towards the conductive member 40, and one magnet in the pair has its north pole facing directly away from the conductive member 40.

[0112] Such an arrangement has been found to produce a high level of heating. It is believed that this is due to the steep gradient in the magnetic field that is produced when the conductive member 40 is disposed between two magnets 30 and 35 oriented in this fashion.

[0113] As shown in FIG. 16, both magnets 30 and 35 have their north poles pointing directly to the left. However, it would be equally suitable, and in accordance with this most preferred arrangement, for both magnets 30 and 35 to have their north poles pointing directly to the right.

[0114] Furthermore, as noted above, it may be suitable for adjacent magnets to have opposing polarities. That is, if one pair of magnets 30 and 35 have their poles arranged as shown in FIG. 16 (north to the left), the magnet pairs adjacent to that pair may have their poles arranged in the direction opposite that shown in FIG. 16 (north to the right).

[0115] As with the embodiment shown in FIG. 1, the embodiment of FIG. 15 may be conveniently expanded by the use of additional conductive members 40 and magnets 30. An arrangement with three conductive members 40 and four sets of magnets 30 is shown in FIG. 17. It is noted that the number of conductive members 40 and magnets 30 is exemplary only, and that other numbers and arrangements may be equally suitable.

[0116] In addition, it is noted that this preferred arrangement is exemplary only, and that other arrangements may be equally suitable.

[0117] The heat generated varies inversely with the distance 12 between the conductive member 40 and the magnets 30. Thus, in a preferred embodiment of an apparatus in accordance with the principles of the claimed invention, the conductive member 40 is spaced a distance 12 of no more than 0.35 inches from the magnets 30. In a more preferred embodiment, the conductive member 40 is a distance 12 of no more than 0.060". However, this arrangement is exemplary only.

[0118] In addition, although in certain embodiments the distance between the magnets 30 and the conductive member 40 may be fixed, this is exemplary only. It may be equally suitable to vary the distance between the magnets 30 and the conductive member 40, either during the operation of the apparatus or as an adjustment while the apparatus is not operating.

[0119] In particular, it is noted that it is possible to vary the magnetic field at the conductive member by varying the distance between the magnets 30 and the conductive member 40. A wide variety of embodiments may be suitable for doing so. For example, referring to FIG. 1, varying the distance 12, i.e. by moving the conductive member 40 or the frame 20 with the magnets 30 thereon from side to side, would change the magnetic field experienced by the conductive member 40. If the distance 12 were varied cyclically, this would generate heat in the conductive member 40 regardless of whether the conductive member 40 or the magnets 30 were rotated.

[0120] Another embodiment taking advantage of this feature is illustrated in FIG. 13. Therein, the single magnet 30 and the conductive member 40 are arranged such that when the frame 20 rotates, the distance 12 varies cyclically as the magnet 30 approaches and recedes from the conductive member 40.

[0121] It is furthermore noted that the variation in distance, whether during operation or not, may be accomplished by moving either the magnets 30, the conductive member 40, or both.

[0122] Alternatively, rather than adjusting the distance between the magnets 30 and the conductive member 40, for certain embodiments it may be advantageous to move the magnets 30 and/or the conductive member 40 in and out of the apparatus 10.

[0123] For example, referring to FIG. 15, either or both of the frames 20 and 25 and/or the conductive member 40 could be slid into or out of the apparatus 10 as a whole. That is, rather than (for example) moving the frames 20 and 25 apart so as to widen the distances 12 and 14, the frames 20 and 25 could be moved downwards, so as to partially or fully remove one or both from the apparatus 10.

[0124] If both frames 20 and 25 are fully removed, the heat generation in the apparatus 10 is essentially zero, as the conductive member 40 are not exposed to a cyclically varying magnetic field. If only one is removed, or if one or both are partially removed, the heat generation of the apparatus 10 at a given speed of operation would decrease, but not to zero.

[0125] Thus, this provides an additional way to control heat production. Such motions may be considered structurally analogous to the insertion and removal of fuel rods in a nuclear reactor.

[0126] Such an arrangement is shown in FIG. 20, with the conductive member 40 partially withdrawn from the apparatus 10.

[0127] As with the variations of the distances 12 and 14, depending on the embodiment it may be advantageous for the frames 20 and 25 to be removable while the apparatus 10 is not operating, while it is operating, or both.

[0128] As noted above, in certain embodiments, the magnets 30 may be disposed in a planar arrangement, such that a surface of the magnets 30 defines a plane 33. Likewise, the conductive member 40 may have a planar shape, so as to generally conform to a plane 43. This is a convenient arrangement for certain embodiments, in that it allows for rapid motion (and hence rapid variation in the magnetic field) without any relative translation between the conductive member 40 and the magnets 30. Thus, the conductive member 40 and the magnets 30 may be disposed very close to one another without risking a collision.

[0129] However, as also noted previously, such an arrangement is exemplary only. It is not necessary for the magnets 30 to be arranged in a plane 33, or (as noted above) for the distance 12 between the magnets 30 and the conductive member 40 to be the same for all magnets 30.

[0130] As heat is produced entirely by means of physical motion, no source of electrical power, fuel, or oxygen is necessary.

[0131] The description herein is primarily directed towards rotary motion about an axis. This is convenient, in that rotary motion about an axis may be easily and reliably produced by a variety of means. In particular, rotary motion about an axis may be produced by a variety of means that require only minimal equipment and infrastructure are suitable, including but not limited to windmills and water wheels. Likewise, internal combustion engines, human or animal power, wave action, gravity, connection with the rolling wheel of a vehicle, and other sources of motive power may be equally suitable. Additionally, rotary motion about an axis may also be produced using an electric motor, such as a conventional AC or DC motor, or by other artificial means.

[0132] In the case of an electric motor, it is noted that it is possible to operate the claimed invention therewith by powering the electric motor from a local source, such as a solar cell, battery, or other short-range or self-contained source, rather than by a connection to a large power grid. In embodiments with electromagnets, the electromagnets similarly may be powered without relying on a central electric grid. Thus, the invention may be made portable, and used without substantial supporting infrastructure. For example, embodiments may be constructed without electrical lines.

[0133] Likewise, gas lines, exhaust lines, waste disposal provisions, etc. may be dispensed with.

[0134] As a result, embodiments of the invention may be of use even when connection with a standard electrical grid, gas distribution system, etc. is inconvenient or impossible (i.e., in places where no such infrastructure is available such as remote wilderness sites and undeveloped areas).

[0135] However, it is again emphasized that other forms of motion other than rotary motion about an axis, including but not limited to linear oscillation and pendular motion, may be equally suitable.

[0136] One possible physical phenomenon that may be at least partially responsible for heating the conductive member is magnetic induction. Although magnetic induction is a known phenomenon, a brief explanation as it may apply to the claimed invention may be enlightening. In the following discussion, it is assumed for the sake of clarity that magnetic induction is responsible for heating the claimed invention. However, it is noted that magnetic induction may not be the sole source of heating, or even a source of heating, in the claimed invention.

[0137] In addition, for the sake of clarity, the following is written specifically with respect to a single embodiment as shown in FIG. 1, wherein the conductive member rotates, and the magnets are fixed in place. However, it is noted that this explanation, in so far as it may be applicable at all, is generally applicable to any embodiment of the claimed invention.

[0138] It is well known that varying magnetic fields generate electrical currents. Even if the magnets 30 generate a magnetic field that is essentially constant in strength and polarity, as is the case with permanent magnets as well as with fixed-strength electromagnets, as the conductive member 40 rotates, different portions of the conductive member 40 approach and recede from the permanent magnets 30. Thus, for any arbitrary point of the conductive member 40, the magnetic field experienced at that point varies, even if the magnetic fields produced by the permanent magnets 30 remain constant.

[0139] Such a variation in magnetic field exerted at a given point of the conductive member 40 could also be obtained by the use of variable-strength magnets. For example, it is known to vary the strength of the field emitted by an electromagnet by changing the amount of current applied to the electromagnet. Likewise, the polarity of an electromagnet may be changed by reversing the direction of the current applied thereto. Such variations may also be suitable for producing a cyclically varying magnetic field at the conductive member 40, with or without any actual physical motion.

[0140] The variation in magnetic field strength at each point of the conductive member 40 generates localized eddy currents within the conductive member 40. The eddy currents, like other types of electrical current, dissipate energy in the form of heat as they flow within the conductive member 40, due to the electrical resistance of the conductive member 40. Thus, as the conductive member 40 rotates in proximity to the permanent magnets 30, the conductive member is heated.

[0141] Alternatively, some or all of the heating of the conductive member 40 may be produced by the generation of vibrations in the molecular structure of the conductive member 40 due to the varying magnetic field strength at each point, which in turn causes internal stresses and/or friction between molecules.

[0142] As a further alternative, stresses and/or variations in the crystal structure of the conductive member 40 may be produced by the varying magnetic field.

[0143] Although the forgoing description identifies physical phenomena that may be involved in the production of heat in the claimed invention, an apparatus in accordance with the principles of the claimed invention is not limited to the production of heat via those phenomena. Additional and/or alternative phenomena may be involved.

[0144] In a preferred embodiment of a device according to the principles of the claimed invention, the conductive member 40 is disk-shaped. This is convenient, in that a disk-shape lends itself to uniform rotation and heating. However, this shape is exemplary only, and a wide variety of other shapes may be equally suitable, including but not limited to square or rectangular plates, curved components, cylinders, toroids, etc.

[0145] Also, in a preferred embodiment of a device according to the principles of the claimed invention, the conductive member 40 is a single, integral piece of conductive material. However, this configuration is exemplary only. A wide variety of other configurations may be equally suitable.

[0146] For example, the conductive member 40 need not consist entirely of electrically conductive material, so long as at least a portion of it is electrically conductive. As illustrated in FIG. 4, the conductive member 40 may consist of multiple layers, with at least one electrically conductive layer 42 and at least one non-conductive layer 44. In such a case, each electrically conductive layer 42 is heated independently.

[0147] Furthermore, the conductive member 40 need not consist of a closed loop or integral piece of conductive material. As illustrated in FIG. 5, the conductive member 40 may consist of two or more separate conductors 46 that are separated from one another by non-conductive material 48. In such a case, each conductor 46 is heated independently.

[0148] Likewise, the conductive member 40, even if a single contiguous piece of conductive material, might be shaped with apertures, or be constructed of wires, beams, rods, etc. with empty space therebetween.

[0149] The rate of heat generation depends on the magnitude of the variation in magnetic field experienced by the conductive member 40. This in turn depends on the placement and field strength of the magnets, on the speed of relative motion between the conductive member 40 and the permanent magnets 30, the placement of the conductive member 40 with respect to the permanent magnets 30, and on the shape, size, and electrical conductivity of the conductive member 40.

[0150] Likewise, the rate of heat generation currents depends on the shape, size, and electrical conductivity of the conductive member 40.

[0151] Therefore, for a given embodiment, the heat generated may be controlled by varying the speed of relative motion between the conductive member 40 and the magnets 30. Thus, the heat generated by an apparatus in accordance with the principles of the claimed invention may be controlled with a high degree of precision. Because of the forgoing, the apparatus may be made to operate at essentially any speed, so as to produce a wide range of heat outputs. The apparatus is thus continuously variable in heat output, up to the maximum temperature limits of the materials used in its construction.

[0152] In a preferred application of an apparatus in accordance with the principles of the claimed invention, the speed of motion may be set such that the temperature of the conductive member 40 does not exceed 120.degree. F., so as to enable generation of heat without posing a burn hazard to persons nearby.

[0153] In an alternative preferred embodiment of an apparatus in accordance with the principles of the claimed invention, the relative motion between the conductive member 40 and the magnets 30 may be set to a speed such that the conductive member 40 is heated to at least the boiling point of water, so as to enable generation of steam.

[0154] In yet another preferred embodiment of an apparatus in accordance with the principles of the claimed invention, the relative motion between the conductive member 40 and the magnets 30 may be set to a speed such that the conductive member 40 is heated to at least 350.degree. F., so as to enable convenient cooking or the release of large quantities of heat in a short time.

[0155] It will be appreciated by those knowledgeable in the art that the precise speed of motion that is necessary to achieve the aforementioned temperatures depends on the geometry of the particular embodiment. For example, for rotary motion, speeds of less than 1 rpm or of greater than 5000 rpm may be suitable for particular applications. Motions other than rotary likewise may vary substantially. Furthermore, a variable speed may be equally suitable, so as to generate variable temperatures and variable quantities of heat.

[0156] A preferred embodiment of an apparatus in accordance with the principles of the claimed invention also includes at least one fluid path 50 proximate the conductive member 40. When the conductive member 40 is heated, fluid in the fluid path 50 receives heat from conductive member 40. Heat transfer from the conductive member 40 to fluid in the fluid path 50 may occur via one or more of conduction, convection, and radiation.

[0157] However, although the presence of a fluid flow path 50 may be advantageous for certain applications, a fluid flow path and fluid flowing therein are exemplary only. In other preferred embodiments of an apparatus in accordance with the principles of the claimed invention, heat may be generated for use via direct conduction, or by radiation from the conductive member. For example, heat could be transferred from the conductive member 40 to a solid heat conductor, heat sink, or heat storage device, i.e. a mass of ceramic, brick, stone, etc.

[0158] It is noted that the term "fluid" is used herein in a broad mechanical sense, so as to mean essentially any substance that may be made to flow. Thus, fluids may include, but are not limited to, sand, sugar, or other granular solids; regular dimensional solids such as beads, beans, or pellets; or irregular dimensional solids such as metal filings or crushed stone. Likewise, materials that are essentially solid but that are also sufficiently deformable so as to flow may also suitable. Such materials include but are not limited to paraffin, metallic sodium, certain plastics, etc. Fluids suitable for use with the claimed invention are therefore not limited to liquids or gases, although liquids and gases are not excluded from or inappropriate for use with the claimed invention. Furthermore, suitable fluids may likewise comprise mixtures of different physical or chemical compounds, such as pellets in a suspension of liquid, solids wholly or partially dissolved in solvents, and emolliated mixtures of incompatible fluids such as oil and water.

[0159] As illustrated in FIGS. 1, 3, and 4, the fluid path 50 is an open path that brings fluid into direct contact with the conductive member 40. This is advantageous, in that it is simple to construct. However, this configuration is exemplary only, and a wide variety of other fluid paths 50, including but not limited to enclosed ducts, pipes, and reservoirs may be equally suitable.

[0160] In particular, it is noted that the fluid flow path 50 may be disposed partially or completely within other elements of the apparatus. For example, the conductive member 40 may be formed so that the fluid flow path 50 passes therethrough. As a more concrete example, the conductive member 40 might include one or more pipes or tubes made of conductive material. The pipes could be adapted to accept the flow of fluid therethrough, so as to form the fluid flow path 50 within the conductive member 40 itself. Fluid flowing through the fluid flow path 50, which in this exemplary embodiment is actually a part of the conductive member 40, would then absorb heat as it passed through the conductive member 40.

[0161] The apparatus may include a support member 60, with one or both of the conductive member 40 and the frame 20 with the magnets 30 thereon engaged therewith. As illustrated, the support member 60 is a shaft mounted such that the conductive member 40 or the frame 20 may rotate therewith. This provides a simple and mechanically durable mechanism for rotating the conductive member 40 or the magnets 30. However, this mechanism is exemplary only, and a variety of other support members 60 may be equally suitable for rotatably mounting the conductive member 40. Suitable support members 60 include, but are not limited to, bushings, bearings, belts, chains, and gears.

[0162] As illustrated, the support member 60 extends through an opening 41 in the conductive member 40. Similarly, as illustrated, the support member 60 extends through an opening 21 in the frame 20.

[0163] In a configuration adapted to rotate the conductive member 40, the opening 41 is configured to secure the conductive member 40 to the support member 60 so as to rotate therewith, while the opening 21 in the frame 20 is configured so that the support member 60 freely rotates therein. Conversely, the opening 41 may be configured so that the support member 60 rotates freely therein and the opening 21 may be configured so that the frame 20 moves with the support member 60, so that the magnets 30 may be rotated while the conductive member 40 remains fixed.

[0164] Such an arrangement is convenient for rotary motion. However, this arrangement is exemplary only, and a variety of alternative arrangements may be equally suitable, both for rotary and for non-rotary motion.

[0165] The apparatus may include a drive mechanism 70 engaged with either the conductive member 40, the magnets 30 (i.e., via the frame 20), or both. As illustrated, the drive mechanism 70 is engaged with the support member 60 such that the drive mechanism 70 drives the support member 60, which as described above may be used to drive either the conductive member 40 or the frame 20. However, this arrangement is exemplary only, and a variety alternative arrangements may be equally suitable. For example, two separate drive mechanisms 70 may be used, one to drive each of the conductive member 40 and the frame 20. Other drive mechanisms 70 may be used to drive other configurations, both rotary and non-rotary.

[0166] Likewise, a wide variety of drive mechanisms 70 may be suitable, as noted above, including but not limited to electric motors and windmill blades. Drive mechanisms are well known, and are not described further herein.

[0167] The apparatus may include a fluid driver 80 adapted to drive fluid through the fluid path 50. As illustrated, the fluid driver 80 is a fan adapted for blowing a gas, such as air, through the fluid path 50. However, this arrangement is exemplary only, and a variety alternative arrangements may be equally suitable. Likewise, a wide variety of fluid drivers 80 may be suitable, including but not limited to pumps for driving liquid. Fluid drivers are well known, and are not described further herein.

[0168] An apparatus in accordance with the principles of the claimed invention may include more than one conductive member 40. Furthermore, any additional conductive members 40 may be disposed proximate more than one arrangement of permanent magnets 30, for example as illustrated in FIG. 3. As illustrated, the several conductive members 40 are all mounted to a single shaft 60, with fluid paths 50 proximate each conductive member 40 Also as illustrated, the frames 20 are connected with struts 90, so as to hold them fixed and rigid with respect to one another while the conductive members 40 rotate. This arrangement is exemplary only, and a variety of other arrangements may be equally suitable.

[0169] An apparatus in accordance with the principles of the claimed invention may be configured so as to produce extremely high efficiencies, in terms of the amount of heat generated compared to the energy input required. The following description is provided as an exemplary case.

[0170] In an embodiment of the claimed invention similar to that illustrated in FIG. 1, the drive mechanism 70 comprises an electric motor, supplied with 95 amperes of current at 220 volts. As is well-known, power may be calculated according to the relation:

P=I.times.V Equation 1:

[0171] wherein:

[0172] P is the power in watts;

[0173] I is the current in amperes; and

[0174] V is the electrical potential in volts.

[0175] In accordance with Equation 1, the power supplied to the electric motor is 20,900 watts.

[0176] In the exemplary embodiment, the fluid driver 80 comprises an electric fan, supplied with 8 amperes of power at 220 volts. According to Equation 1, the power supplied to the fan is thus 1,760 watts.

[0177] Thus, the total power input into the system is 22,660 watts. For the sake of convenience, the input power may be converted to BTU/hr. 1 watt is equivalent to approximately 3.415 BTU/hr. Thus, the total power input into the exemplary embodiment is equivalent to 77,179 BTU/hr.

[0178] Total power output in the exemplary embodiment may be conveniently determined from the change in thermal energy of fluid as it passes through the system. In the exemplary embodiment, air is used as a fluid. The heat output of the system may be determined according to the known relation:

Q=q.times..rho..times.C.sub.p.times.(T.sub.O-T.sub.I) Equation 2:

[0179] wherein:

[0180] Q is the total heat output

[0181] q is the flow rate of air through the system

[0182] .rho. is the density of air

[0183] C.sub.p is the heat capacity of air

[0184] T.sub.O is the outlet temperature of the air

[0185] T.sub.I is the inlet temperature of the air

[0186] In the exemplary embodiment, the air flowing through the device is heated by 80.degree. F. Thus, the difference between the outlet and inlet temperatures of the air (T.sub.O-T.sub.I) is 80.degree. F.

[0187] The flow rate of air through the system in the exemplary embodiment is measured to be 3200 ft.sup.3/min. This may also be expressed as 192,000 ft.sup.3/hr.

[0188] The remaining values are known to reasonable accuracy. The density of air .rho. at standard temperature and pressure is known to be approximately 0.075 lbs/ft.sup.3. The heat capacity of air C.sub.p is known to be 0.24 BTU/lb-.degree. F.

[0189] Thus, according to Equation 2, the heat output of the exemplary embodiment is 276,480 BTU/hr.

[0190] The efficiency of an apparatus is commonly expressed in terms of the output divided by the input. The efficiency of the exemplary embodiment in generating heat may thus be expressed as (276,480 BTU/hr)/(77,179 BTU/hr), which reduces to a value of approximately 3.58, or 358% efficiency.

[0191] It is noted that the preceding is exemplary only. An apparatus in accordance with the principles of the claimed invention is not limited to the particular devices, materials, or power inputs and outputs described in the preceding invention.

[0192] Furthermore, 358% efficiency is in particular exemplary only, and is not to be considered to be a maximum value, a minimum value, or even a preferred value. Apparatuses in accordance with the principles of the claimed invention may be constructed with a variety of operating efficiencies.

[0193] Thus, the total heat energy generated within the conductive member 40 exceeds the total energy applied to the apparatus 10. In the case described above, the ratio of heat generated to energy applied is 3.58 to one, i.e. an efficiency of 358%.

[0194] Several comments on theoretical energy efficiency calculation may be in order at this point.

[0195] Although in the above description, as in practice, the total energy calculations are determined by measuring the heat change in the fluid (and therefore include the energy applied to drive the fluid), as a theoretical matter it might be more clear to consider the efficiency in terms of the energy applied to the conductive member 40 and/or the magnets 30 so as to produce the cyclically varying magnetic field (energy in), as compared to the heat energy produced in the conductive member 40 thereby (energy out).

[0196] For embodiments wherein the cyclical variations in the magnetic field are produced by physical motion of the conductive member 40 and/or the magnets 30, the actual input energy is kinetic in nature.

[0197] When considering kinetic energy applied, the kinetic energy applied to any supporting structures, such as a frame 20 that supports the magnets (and moves therewith) must of course be included. Thus, the kinetic energy in question is the kinetic energy applied to produce the cyclical motion between the conductive member 40 and the magnets 30, not simply the kinetic energy of the magnets 30 or the conductive member 40 alone. This is true regardless of precisely what the motion is, or of how much additional mass (if any) is moved as well.

[0198] Likewise, for embodiments wherein the cyclical variations in the magnetic field are produced by variations in the field strength of electromagnets, the actual input energy is electrical in nature.

[0199] For embodiments that use both physical motion and variable-power electromagnets, the input energy will be the sum of the applied kinetic and electrical energy.

[0200] Thus, regardless of the original source of the applied energy, i.e. whether by wind, water, an electric motor, a battery, a human or animal-operated mechanism, etc., the actual energy input for the invention for heat production is kinetic and/or electrical in nature.

[0201] Likewise, regardless of the use of the energy produced, be it the production of steam, the generation of electric power, or the deliberate heating of an object or area, the actual energy output of the invention is the heat generated within the conductive member 40.

[0202] However, it is noted that in actual applications and test conditions, it is often more convenient to measure the heat output, rather than measure the heat production directly. Likewise, it is often more convenient to measure the total energy applied to the system, rather than measure kinetic and electrical energy applied directly to the conductive member 40 and/or the magnets 30.

[0203] Such measurements may introduce small deviations into test data. For example, ancillary devices such as fluid drivers 80 consume energy, and produce some quantity of heat. The energy applied to such devices is not used directly by the ***magnetic heater*** portion of the apparatus, i.e. it does not act to vary the magnetic field experienced by the conductive member 40. Consequently, it does not generate heat in the conductive member 40. Neither the energy provided to such devices nor the heat produced by them is properly considered when calculating the efficiency of the invention.

[0204] However, in practice such deviations are of little or no consequence. First, the energy input and heat output of fluid drivers 80 and similar devices is generally very small compared to that of the heater apparatus 10 as a whole. Thus, any effect on the calculated efficiency is likewise small.

[0205] Second, because the efficiency of such known devices in transforming electricity and other energy inputs into heat is much less than 100%, this will result in test data showing efficiency that is actually lower than the true efficiency.

[0206] For these reasons, it has been considered acceptable in calculating efficiency as in the example above, wherein the total energy applied is summed and compared to the total change in heat energy of the fluid.

[0207] However, it is noted that, at least for theoretical purposes, efficiency may be properly regarded and referred to as the thermal energy produced in the conductive member 40 divided by the kinetic and electrical energy applied to the conductive member and/or the magnets in order to produce cyclical variations in the magnetic field. In its most basic terms, the heat production efficiency of the invention is its efficiency in converting this applied kinetic and electrical energy to thermal energy in the conductive member 40.

[0208] In a preferred embodiment, the heat production efficiency is at least 100%.

[0209] In a more preferred embodiment, the heat production efficiency is at least 150%.

[0210] In a still more preferred embodiment, the heat production efficiency is at least 200%.

[0211] In a yet more preferred embodiment, the heat production efficiency is at least 250%.

[0212] In an even more preferred embodiment, the heat production efficiency is at least 300%.

[0213] In a most preferred embodiment, the heat production efficiency is at least 350%.

[0214] Heat production efficiency is not necessarily limited to about 350%; higher efficiencies may be equally suitable. In addition, it may be suitable to produce heat with an efficiency of less than 100% in certain embodiments.

[0215] It is noted that efficiency at levels such as those described above, as measured during development of the invention, are unprecedented in conventional devices. It is acknowledged that levels of efficiency in excess of 100% would seem to defy conventional understandings with regard to thermodynamics. The reason for such high levels of efficiency, and the physical basis underlying them, is not fully understood at the time this application is filed. However, it is emphasized that the above efficiency calculations are based upon practical data, and are believed to accurately reflect the performance of the claimed invention.

[0216] A wide variety of possible configurations, beyond those illustrated and described in detail, are possible. Essentially any arrangement wherein a conductive member 40 is moved proximate at least one magnet 30 or vice versa may be suitable.

[0217] For example, for certain applications it may be advantageous to form the conductive member 40 or the frame 20 (or even the magnets 30) into a shape that drives fluid within or through the fluid path 50. For example, the conductive member 40 or the frame 20 may be configured to include vanes, blades, etc. That is, the fluid driver 80 may be integral with the conductive member 40 or the frame 20, depending on which is moving. Such an arrangement is illustrated in FIG. 11.

[0218] Furthermore, the conductive member 40 may be of essentially any shape and size. Although the precise quantity of heat produced depends in part on the geometry of the apparatus, significant amounts of heat may be produced by a device of substantially any size. At one extreme, an apparatus in accordance with the principles of the claimed invention may be made to be of microscopic or submicroscopic size. Such a device could be utilized for example in nanotechnology applications.

[0219] Conversely, an apparatus in accordance with the principles of the claimed invention may be constructed so as to be extraordinarily large, so as to be suitable for large-scale commercial or industrial applications.

[0220] The fluid flow path 50 likewise may be of various configurations. For example, one or more fluid flow paths 50 may be disposed within the conductive member 40. In one possible embodiment, a pipe might carry fluid into spaces within the conductive member 40, wherein the fluid would absorb heat from the conductive member 40.

[0221] Alternatively, fluid flow paths 50 could be connected to the conductive member 40. For example, tubing or the like could be secured to the conductive member 40, such that fluid flowing therethrough absorbs heat from the conductive member 40.

[0222] In addition, the magnets 30 themselves may have a variety of different forms. For example, a magnet 30 in the shape of a cylindrical shell may be used, with a conductive member 40 in the form of a hollow tube being rotated therein.

[0223] In addition, although the preceding discussion is directed primarily towards the generation of heat, the claimed invention may be utilized for cooling purposes as well. In such an arrangement, a fluid with a suitable boiling point and heat of vaporization, including but not limited to water or freon, would be utilized.

[0224] Fluid in the vicinity of the conducting member 40 is kept under pressure. Once the fluid absorbs heat from the conductive member 40 such that its temperature exceeds its boiling point at ambient pressure, it directed away from the conductive member 40, whereupon the pressure is released, and the fluid is allowed to expand from a liquid state into vapor. The expansion draws heat energy equal to its heat of vaporization from whatever may be in the vicinity of the expansion. The object or area thus loses that quantity of heat, and is cooled. This effect may be made to occur even when the fluid responsible for the cooling effect is warmer than the object or area that is being cooled. Thus, counter-intuitively, a hot fluid may be used for cooling.

[0225] It is also noted that heat produced by the invention, and fluids heated by the invention, may be put to a wide variety of uses. Suitable applications include, but are not limited to, as a convection furnace, as a space heater, as a cooking stove or oven, for water purification or desalinization, clothes drying, heating livestock trailers or quarters, as a hair dryer or heat gun, for humidification by evaporation, as a water heater, for air conditioning, as a swimming pool heater, for smelting or processing of ores, metals, or alloys, for food dehydration, for steam sterilization, as a Sterling engine heat source, for heat sterilization, for steam generation, for thermoelectric generation, and for the production of infrared, visible, and ultraviolet light waves via incandescent heating.

[0226] Other applications include the roasting of grains, peanuts, coffee, etc, use as a submersible heater for stock ponds, fish farms, wildlife sanctuaries, water troughs for livestock, etc, and the humidification, dehumidification, and purification of air.

[0227] It is emphasized that although many of the uses described herein are small-scale residential or commercial applications, the claimed invention is not limited to small scale applications only. The size of the device, and its heat output, may be scaled up or down as materials and space permit to fulfill a wide variety of roles. In particular, large scale agricultural and commodities processing, and industrial heating, cooling, refrigeration, and freezing may be suitable applications for certain embodiments of the claimed invention.

[0228] In addition, it is noted that an apparatus in accordance with the principles of the claimed invention may be made in a very simple fashion, without complex mechanisms and with very few moving parts.

[0229] As a result, embodiments may be constructed so as to be extremely durable, both in actual use and in terms of "shelf life".

[0230] Furthermore, because of the relatively simple construction of the claimed invention, the limited number of moving parts, and the lack of a need for a substantial supporting infrastructure (i.e. fuel lines, waste gas venting, etc.), embodiments of an apparatus in accordance with the principles of the claimed invention may be suitable for extremely harsh or demanding environments. For example, it may be suitable for applications wherein high gee-forces and other stresses are common, such as rockets and other high-energy launch vehicles and devices, spacecraft, military vehicles, and even certain types of munitions. Likewise, it may be suitable for use in vacuum and zero-gravity or micro-gravity environments, such as in spacecraft. As a further matter, it is noted that certain embodiments may be adapted to utilize solar wind to provide rotational energy, so as to generate the cyclically varying magnetic fields.

[0231] Ultimately, the claimed invention may be useful for any application wherein heat generation, the transfer of heat from one location to another, or a product or process that may be produced or operated with heat or heat transfer (such as steam, electricity) is desired.

[0232] In order to more fully describe possible applications for embodiments of the claimed invention, FIGS. 18 and 19 show two exemplary devices.

[0233] The exemplary heater 11 shown in FIG. 18 includes a heater mechanism similar to that shown in FIG. 15, comprising a conductive member 40, frames 20 and 25 with magnets 30 and 35 thereon, the magnets being disposed at distances 12 and 14 from the conductive member 40. A fluid driver 80 is arranged therein to drive fluid through the fluid flow path 50. A support member 60 extends through the conductive member 40 and the frames 20 and 25, and is connected to a drive mechanism 70.

[0234] As previously noted with regard to other described embodiments, many of the components noted above and illustrated in FIG. 18 are exemplary only, and may be modified or omitted.

[0235] As illustrated, the above components are contained within a housing 12. The housing 12 provides protection for the components, and also protects persons and objects nearby from coming into contact with the hot conductive member 40, and any moving parts (such as, in certain embodiments, the magnets, frames, or conductive member).

[0236] Housings are well known, and are not described further herein.

[0237] In addition, as illustrated, the heater 11 may include a temperature control mechanism 13. The temperature control mechanism 13 provides a convenient way of controlling the heat output of the heater 11. As shown, the temperature control mechanism 13 is in communication with the drive mechanism 70. With such an arrangement, the speed of motion of moving frames 20 and 25 or conductive member 40 could be controlled thereby. However, this is exemplary only. It would also be possible, for example, to control the heat output by controlling the distances 12 and 14, or by moving the magnets 30 and 35 and/or the conductive member 40 into or out of proximity with one another.

[0238] Suitable temperature control mechanisms 13 include, but are not limited to, thermostats and fixed-level output controls (such as numbered dials or sliders). Temperature control mechanisms 13 are well known, and are not described further herein.

[0239] It is noted that, depending on the scale and the precise configuration, the heater 11 shown in FIG. 18 might be suitable for a variety of roles, ranging from a small hot air blower or space heater, to a water heater or home furnace, to a large industrial heating device.

[0240] Turning to FIG. 19, the exemplary heat driven apparatus 14 shown therein also includes a heater mechanism similar to that shown in FIG. 15. As illustrated, it comprises a conductive member 40, frames 20 and 25 with magnets 30 and 35 thereon, the magnets being disposed at distances 12 and 14 from the conductive member 40. A fluid driver 80 is arranged therein to drive fluid through the fluid flow path 50. A support member 60 extends through the conductive member 40 and the frames 20 and 25, and is connected to a drive mechanism 70. Again, many of these components are exemplary only, and may be modified or omitted.

[0241] In addition to the heater mechanism, the heat driven apparatus 14 also includes a heat operated mechanism 15. The heat operated mechanism 15 is in communication with the heater mechanism, so as to receive heat therefrom.

[0242] In FIG. 19, this is illustrated by the positioning of the heat operated mechanism 15 on the far side of the conductive member 40 from the fluid driver 80, such that the heat operated mechanism 15 would receive heated fluid therefrom. However, this is exemplary only. Other arrangements may be equally suitable, including but not limited to direct contact between the conductive member 40 and the heat operated mechanism 15, and heat transfer via direct fluid loops, secondary fluid loops, heat exchangers, radiation, etc.

[0243] The precise manner in which the heat operated mechanism 15 is in communication (i.e., the manner in which heat is provided to the heat operated mechanism 15) may vary from embodiment to embodiment, and in particular may vary depending upon the nature and function of the particular heat operated mechanism 15. So long as the heat operated mechanism 15 is in communication with the heater mechanism, and thus so long as heat is transferred to the heat operated mechanism 15, the precise manner by which this occurs is incidental.

[0244] A wide variety of heat operated mechanisms 15 may be suitable for use with the heat driven apparatus 14. Suitable heat operated mechanisms 15 include, but are not limited to, a furnace, a space heater, an electrical generator, a steam generator, an air conditioner, and a cooking mechanism. Other suitable heat operated mechanisms may include mechanisms for performing any of the applications described elsewhere herein.

[0245] Because the heat operated mechanism 15 may vary considerably, it is illustrated in FIG. 19 in schematic form only, as a "black box" device. However, in practice, the heat operated mechanism 15 may have structure, may have various outputs, and may utilize or require inputs in addition to the heat from the heater mechanism. The schematic form used to show the heat operated mechanism 15 should not be interpreted as excluding such structure, inputs, and outputs.

[0246] In particular, it is noted that although the apparatus 14 is referred to as being heat driven, this should not be interpreted as implying that other inputs or power sources are necessarily excluded. For example, in embodiments where they are present the drive mechanism 70 or fluid driver 80 may draw electrical power, or may be operated by the force of fluid flow, the turning action of a windmill, etc. The term "heat driven apparatus" as used herein refers to the fact that a source of heat is utilized by the apparatus 14 in performing its intended function, not that heat is the sole requirement or input for performing that function.

[0247] The above specification, examples and data provide a complete description of the manufacture and use of the composition of the invention. Since many embodiments of the invention can be made without departing from the spirit and scope of the invention, the invention resides in the claims hereinafter appended.

USP # 5,742,111

(4-21-1998)

DC Electric Motor

Troy G. REED

Applicant: SURGE POWER CORP (US)
Classification: - international: H01R39/04; H01R39/32; H02K13/10; H01R43/06; H01R39/00; H02K13/10; H01R43/06; (IPC1-7): H02K13/00;- european: H01R39/04; H01R39/32; H02K13/10
Application number: US19960588342 19960118
Priority number(s): US19960588342 19960118

Abstract --- The commutator segments for a d.c. electric motor includes one or plurality of slots which improves horsepower at less amperage.

Abstract

The commutator segments for a d.c. electric motor includes one or plurality of slots which improves horsepower at less amperage.

Current U.S. Class: 310/236 ; 310/227; 310/233
Current International Class: H01R 39/04 (20060101); H02K 13/10 (20060101); H01R 39/00 (20060101); H01R 39/32 (20060101); H01R 43/06 (20060101); H02K 013/00 ()

Other References

"The Slotting of Commutators of Electric Motors," Scientific American, Col. 1, Vth Article. Oct. 23, 1915..

FIELD OF THE INVENTION

This invention is directed to an improved direct current (d.c.) motor. In particular, it is directed to an improved commutator system for a d.c. motor.

BACKGROUND OF THE INVENTION

A typical d.c. motor comprises a cylindrical stator, a rotor journaled on a shaft for rotation within the stator with a uniform gap between the rotor and stator as the rotor rotates. Armature windings are inserted in slots in a cylindrical surface on one of the stator and rotor and being divided into similar coils mutually spaced around the shaft axis. Magnetic field generating means are located on the other of said stator and rotor for forming poles mutually spaced around the shaft axis. D.C. motors require commutation, i.e., the process of reversing the current in each armature coil. This is carried out when the commutator segments to which the coil is connected are short-circuited by a brush connected to the d.c. supply voltage. The commutator is made up of a plurality of insulated, separate segments formed in a cylindrical surface with each surface electrically connected to an armature coil. The stator may comprise a ring of permanent or d.c.-field magnets which are attached to the inside of a housing or frame surrounding the rotor.

Structurally, a typical commutator consists of a plurality of wedge-shaped copper bars that are built up to form a complete circular cylindrical contact surface with each segment separated and electrically insulated from one another by thin strips of mica. Means are provided to permit attachment of the ends of each rotor coil winding to separate spaced commutator bars. Stationary brushes of carbon blocks or copper gauze, which are electrically connected to a d.c. source, ride upon the commutator contact surface which make contact with the commutator segments. The d.c. current which is supplied to the brushes flows in the appropriate direction to the rotor coils only when they are opposite the appropriate field pole (North or South). The appropriate direction means that for all coils, the force produced will be in the same direction at all speeds and loads for the ring of segments and the brushes provide automatic switching to insure that this is so. A d.c. commutator motor has advantages over induction and synchronous motors in the ability to provide efficient speed variation over a wide range without a variable supply frequency. D.C. motors are typically classified as "shunt", "series", "compound" (sometimes classed as a varying speed motor), or "compensated compound" motors depending upon the application. Motors used in golf carts are inclusive of this invention. D.C. motors are particularly favored where high speed or variable speed electric drive is required.

SUMMARY OF THE INVENTION

It is an object of this invention to provide an improved commutator for a d.c. electric motor which will provide improved horse power and torque for a given volt/amperage input as compared to a conventional d.c. motor.

In accordance with this invention, there is provided a d.c. motor comprising a cylindrical stator that includes permanent or d.c. fed coil type magnets. A rotor is journalled on a shaft for rotation within the stator with a uniform gap between the rotor and the stator as the rotor rotates. There are insulated armature windings, or coils, which are inserted in slots in a cylindrical surface on the rotor being divided into similar coils mutually spaced around the shaft axis. Magnetic field generating means are located on the other of the stator and the rotor for forming magnetic poles mutually spaced around the shaft axis. A switching means occurs utilizing commutator segments which are adapted to connect the armature coils to a d.c. source in timed synchronism with a rotation of the rotor. The d.c. electric source flows through brushes which may be carbon blocks or copper gauze. The switching means connects the armature coils to the d.c. source and in timed synchronism with the rotation of the rotor such that switching of the d.c. to each armature coil occurs when a magnetic pole generated by that coil is substantially in alignment with a rotor (or stator) pole of opposite polarity and thereby drawing it toward each other to create the rotary motion. In other aspects like polarity is created to exert a repelling force on the rotor poles to maintain the rotation. Instead of the field generating means, the stator may comprise a permanent magnet which can include the motor casing that supports the stator.

A primary object of this invention is to provide a d.c. motor with an improved commutator, wherein the brush contact surface of each commutators segment includes at least one gap or slot that is angular to, or transverse to, the direction of rotation of the commutator.

These and other objects of the invention will become more apparent upon further reading of the specification, claims and drawings herewith.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the commutator formed as a part of this invention.

FIG. 2 is a partial sectional view across the commutator of this invention.

FIG. 3 is a perspective view of an individual commutator segment forming this invention.

FIG. 4 is a simple schematic of a variety of forms of d.c. electric motors.

FIG. 5 and 6 are wiring diagrams of the test motor described herein.

FIG. 7 is a partial sectional view across a commutators segment of another embodiment of this invention.

FIG. 8 is a top elevational view of an alternate form of an individual commutator segment of this invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

While the invention has been described with a certain degree of particularity, it is manifest that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure. It is understood that the invention is not limited to the embodiment set forth herein for purposes of exemplification, but is to be limited only by the scope of the attached claim or claims, including the full range of equivalency to which each element thereof is entitled.

Referring now to FIG. 1, 2, and 3, the commutator of this invention is generally designated by the numeral 10 and is comprised of a plurality of individual insulated segments 12,. The commutator is attached to the rotor shaft 14 and includes a hub 16 to which the segments 12 are insulatively attached. Each segment includes a means such as a slot or other form of electrical wiring connection 18 which connects with the appropriate portions of the armature coils which are formed within the rotor. A plurality of brushes 20 and 22 are used to make rubbing electrical contact with contact surface 24 of each segment. The brushes are appropriately connected to a d.c. source, i.e., a battery or the like, as is well known to those skilled in the art. The number and size of segments 12 and number of brushes 20 and 22 may vary and depend upon the performance characteristics of each d.c. motor design. Each commutator segment 12 is insulatively separated at 13 usually with mica.

The invention herein comprises at least one or a plurality of air gaps or slots 30, as best shown in FIGS. 2 and 3, in the brush contact surface 24 of each segment 12. The air gaps or slots are cut into the cylindrical contact surface 24 preferably radially and transverse to the direction of rotation of the commutator. The gaps are typically slots of width ranging in width between 0.010" (0.25 mm) and 0.032" (0.81 mm). This range is not limiting, as the size of the slots will vary as to the width of the contact surface of the commutator and the number of slots therein. The slots could be angularly directed relative to the direction of rotation of the commutator, as shown in FIG. 8. As shown in FIG. 7 each segment 25 includes slots 27 of partial depth or, as shown in FIGS. 2 and 3, the full depth of the contact surface of the commutator segment and may be open or filled with an inert material, e.g., mica or other electrically insulative material.

FIG. 4 is submitted to show schematically the various exemplary forms of d.c. motors to which this invention is applicable.

Although the slots are shown as radial and transverse to the direction of rotation of the rotor and rotor shaft, the invention includes slots which are angularly directed to the direction of rotation.

FIG. 4 represents wiring schematics of various forms of d.c. motors to which this invention is applicable, although not limited thereto.

FIGS. 5 and 6 represent the stator(s) and armature wiring schematics for the test motor described heretofore.

FIG. 8 depicts commutator segment 24 with angular slots 31.

PERFORMANCE CHARACTERISTICS

A test was conducted comparing a standard series wound 8 horsepower at 3400 rpm, d.c. motor, type 7544D, sold under the name VERSATILE as manufactured by the Baldor Electric Company of St. Louis, Mo. with the same motor having a commutator modified in accordance with this invention. The motor used d.c. enhanced magnet wire coils, four(4) in the stator and two (2) in the armature. The standard motor commutator had 72 segments with effectively 4 brushes. The test results were as follows:

_______ STANDARD MOTOR TORQUE TORQUE HORSE- a % RPM LB-FT N/m AMPS VOLTS POWER Eff. ______ .sup. 3004.sup.1 14.20 80 4770 3.00 4.07 24.80 160 2.726 51 4172 6.00 8.13 32.40 160 4.769 69 3797 9.25 12.54 40.90 160 6.690 76 .sup. 3604.sup.2 12.25 16.61 48.90 160 8.409 80 3400 15.50 21.02 57.10 160 10.127 83 3313 10.50 14.24 65.40 160 11.674 83 3652 11.501 15.59 46.90 160 8.000 80 3598 12.353 16.75 49.16 160 8.466 80 ____ .sup.1 No load. .sup.2 Full load. Note: Newtonmeter (N/m) calculated: 1.355818 .times. lbft-force.

Efficiency calculated: ##EQU1## Where: P=Horsepower

E=Volts

I=Amps

In the modified commutator, according to this invention, the contact surface of each segment was modified to include one air gap or slot 0.023" (0.58 mm) in width therein. The modified commutators included two tests, one where the armature windings were soldered to the commutator segment and another where they were brazed. Tests on the soldered were made where the motor was run both clockwise and counterclockwise. The comparative results were as follows:

____ SOLDER (CLOCKWISE) TORQUE TORQUE HORSE- RPM in-lb N/m AMPS VOLTS POWER n % ______ 1697 158 17.85 50.7 80 4.26 78 1895 173 19.54 53.4 90 5.20 80 2055 188 21.23 57.2 100 5.13 67 2256 203 22.93 60.6 110 7.27 81 2445 215 24.28 63.7 120 9.34 91 2631 236 26.66 68.2 132 9.86 81 2791 248 28.01 70.5 140 10.99 83 2970 257 29.03 73.0 149 12.12 83 ____ Note: Newtonmeter (N/m) calculated: 1.129848 .times. inlb-Force .times. 10.sup.-1.

_______ SOLDER (COUNTERCLOCKWISE) TORQUE TORQUE HORSE- RPM in-lb N/m AMPS VOLTS POWER n % ________ 1703 158 17.85 47.5 80 4.27 83 1957 173 19.54 50.6 90 5.37 87 2344 188 21.23 54.2 100 6.99 96 2314 203 22.93 58.0 110 7.46 87 2513 215 24.28 60.9

120 8.58 87 2717 236 26.66 65.4 132 10.18 87 2858 248 28.01 68.0 140 11.25 88 3229 257 29.03 70.0 149 13.17 94 ______________________________________

________ BRAZED (COUNTERCLOCKWISE) TORQUE TORQUE HORSE- RPM in-lb N/m AMPS VOLTS POWER n % __________ 1742 158 17.85 47.5 80 4.37 85 1920 173 19.54 50.6 90 5.27 86 2127 188 21.23 54.5 100 6.35 87 2308 203 22.93 57.7 110 7.44 87 2495 215 24.28 60.9 120 8.51 87 2690 236 26.66 65.4 132 10.08 87 2852 248 28.01 67.6 140 11.23 88 3012 257 29.03 70 149 12.29 89 ______________________________________

Based on these tests, it would appear that a modified commutator, according to this invention, provides increased efficiency, greater torque and horsepower at lower rpm.

WO # 9010337

MAGNETIC MOTOR

Troy REED

Classification: - international: H02K7/02; H02K7/06; H02K53/00; H02K7/00; H02K7/06; H02K53/00; (IPC1-7): H02K1/00; H02K7/02; H02K21/22;- european: H02K53/00
Also published as: EP0461179 (A1) // EP0461179 (A4) // EP0461179 (A0)
Cited documents: US3497706 // US1893840 // US4745312 // US4703212 // US4916343

Abstract --- A magnetic motor is driven by the repelling forces of fixed and rotating magnets. The rotating magnets (22, 32) are mounted equally spaced about the perimeter of a disk (20) which rotates as the flywheel of the motor. Stationary magnets (18, 28) are supported adjacent the rotating magnets (22, 32). There are four injector pins (76A, 76B, 76C, 76D), much like the common injector pins on ball point pens, which are set and released by an injector pad (48A, 48B, 48C, 48D) driven by the crankshaft (14) of the engine. The crankshaft (14) and flywheel are driven by the repulsive forces created by the fixed and rotary magnets (22, 32) with the injector pin system (34, 36, 38, 40) operating to kick the crankshaft (14) and the flywheel over center.

This invention relates to a magnetic motor for converting magnetic force into rotary motion. Reciprocating devices are well known in which a piston is slidably disposed within a similar chamber. A driving force is periodically generated in the cylinder chamber to drive the piston to reciprocating motion. Electromagnetic force has been utilized to provide the driving force in reciprocating engines or devices. In some such devices, a plurality of electrical coils surroundingthe engine cylinder chambers are provided. Electrical coils are actuated by electrical current so that electromangetic forces developed in the chamber could drive the piston to reciprocating motion. Normally, electromagnetic reciprocating devices are very complex in structure and very elaborate control means must be incorporated in the structure to operate the device in a controlled and useful manner. Furthermore, in most prior magnetic motors a constant supply of electrical current must be fed to the coils in order to develop a useful reciprocating motion.In US Patent 3,811,058 to Kiniski the patentee states that he has discovered that the magnetic energy stored in permanent magnetic material such as permanent magnets may be utilized to provide the driving force necessary for reciprocating device.

Summary of the Invention

This is a magnetic motor having a crankshaft mounted between two disk-like stationary magnetic holders. Preferably eight permanent magnets are positioned equally distanced about the periphery of each disk. Fixed on the end of each shaft is a rotatable magnetic support wheel which has a similar number of magnets equally spaced about its periphery. The magnets on one such wheel are 22-1/2 degrees out of alignment with the magnets on the other rotating wheel. Injector pins are mounted on a case above the crankshaft. Each such injector system has an injection drive pin which has intermittent contact with an injector pad drivrn up and down in the injector pin housing by rotation of the crankshaft. The pin injecting drive system includes the mechanism similar to that which is used to push out and retract the ball tip out of ink writing pens. The magnets on each magnetic holder are 45 degrees apart and the magnet on one fixed disk or stationary disk is in alignment with the permanent magnets of the permanet disk on the other end of the crankshaft. When the magnetic support wheelmis rotated from the stop position the magnets will either attract or push and in the preferred embodiment they will push or be repulsive, that is the magnets on the permanent disk will have the same polarity as the polarity of the rotating magnets which come in close proximity to each other. Injectors are used to kick the crankshaft and the flywheel or the rotating magnetic support wheelsmover center so that the next propulsion force is created by the fixed rotary magnets will continue the rotational movement.

Brief Description of the Drawings

FIGURE 1 illustrates a full face side view partly cut away of my magnetic motor.

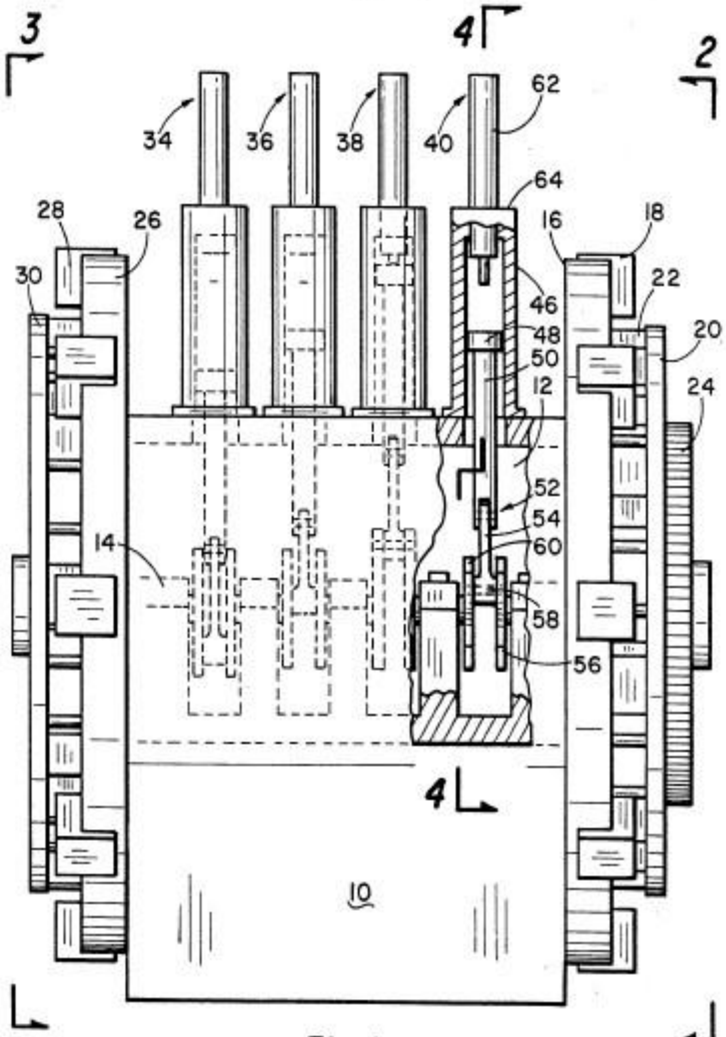


Fig.1

FIGURE 2 is a right side elevation taken along the line 2-2 of Figure 1.

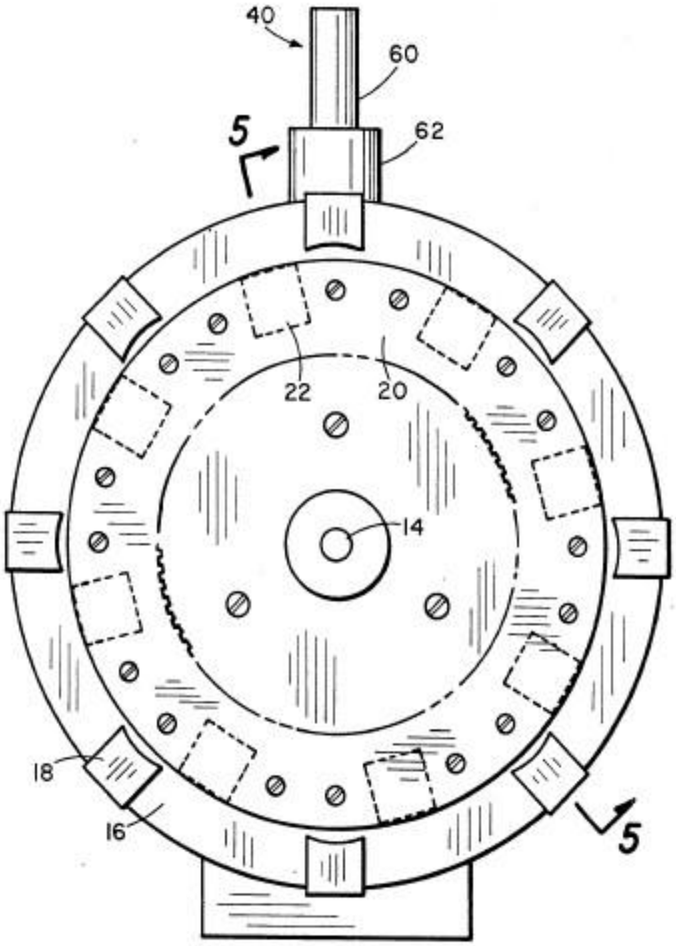


Fig. 2

FIGURE 3 is a left side elevational view taken along line 3-3 of Figure 1.

FIGURE 4 is a view taken along line 4-4 of Figure 1.

FIGURE 5 is a view taken along the line 5-5 of Figure 2.

FIGURE 6 is a view mostly in section of the injector pin system of my magnetic motor.

FIGURE 7 is a view taken along the line of the line 7-7 of Figure 6.

FIGURE 8 is a full-face view of the injector pin of the injector pin system of Figure 6.

FIGURE 9 is a full face view of the toothed spring holder head whose shaft is insertable into the injector sleeve head shown in FIgur**e 8.**

FIGURE 10 is a view taken along the line 10-10 of Figure 9.

FIGURE 11 is a view with the toothed head in a position just prior to falling to the cocked postion of FIGURE 13.

FIGURE 12 is an internal view of the interior of the injector wall unrolled.

FIGURE 13 is a view partly in section of the injector pin in the cocked position.

FIGURE 14 is a view taken along the line 14-14 of Figure 13.

FIGURE 15 represents the four injector pins in the relative position with the pin one the left being in top dead center.

FIGURE 16 is similar to Figure 15 except that the second pin from the left is in the top dead center position.

FIGURE 17 is similar to FIGURE 16 except that the third injector from the left is in the top dead center position.

FIGURE 18 is similar to Figure 17 except that the fourth injector pin is in the top dead center position.

FIGURE 19A and 19B show, respectively, the left hand and right hand magnet orientation on the rotating and non-rotating magnets when the injector is in the top dead position as shown in Figure 15.

FIGURES 20A and 20B are similar to Figures 19A and 19B respectively and show, respectively, the left and right hand magnet orientation when the second pin injector is in the top dead position as shown in FIgure 16.

FIGURES 21A and 21B show, respectively, the left hand and right hand magnet orientation when the first pin injector is in the top dead position as shown in Figure 17.

FIGURES 22A and 22B show, respectively, the left hand and right hand magnet orientation when the second pin injector is in the top dead position as shown in Figure 18.

Detailed Description of the Invention

Attention is first directed to Figures 1, 2 and 3. In Figure 1 there is shown a case block 10 with cavity 12 in which is mounted a crankshaft 14 supported from block 10 by bearings or bushings 15. On the right side is a stationary base magnet holder 16 on which is permanently fixed magnets 18. As can clearly be seen in Figure 2 there are 8 such permanent magnets 18. A magnet support wheel 20 is fixed to adn supported by and rotated with crankshaft 14. The magnetic support wheel 20 support eight rotating magnets 22 equally spaced. Gear 24 is secured to crankshaft 14 to serve as a power takeoff means.

On the left hand side of the device in Figure 1 is a stationary base magnet holder 26 having eight stationary magnets 28 whihc are aligned with magnets 18. There is also a rotating magnetic field support wheel 30 having eight equally spaced rotating magnets 32 fixed thereto. The rotatin magnets on one wheel are 22-1/2 degrees out of alignment with those on the other rotating wheel.

As shown in Figure 1 there are four pin injector assemblies 34, 36, 38 and 40 which are mounted on top of case 10. As shown in the cutaway view of pin injector system 40 there is injector driver pin 42 which in the position shown for injector pin system 40 extends down belowhousing 44 into enlarged housing 46. Spaced within housing 46 is an injector pad 48 which is slidably mounted in that housing. The injector pad is connected by a connecting rod 50 to knuckle joint 52 which has a second connecting arm 54 whihc is pivotally connected to a parallel crank arms 56 and 60 which are connected to the shaft 14. A pivot pin 58 connects the connecting rod 54 to the crank arms 56 adn 60. The other three pin injector assemblies 34, 36 and 38 are similarly connected to the crankshaft 14, however, they are so positioned on the shaft that only one is in its top dead position at a time. They reach their top dead position 90 degrees apart for each rotation of the crankshaft 14.

Attention is now directed especially to Figures 2 and 3. It can be seen that they are similar but have a different orientation. Each side has magnet support wheel with eight magnets thereon which rotates with the wheel and eight magnets mounted on the stationary magnet holder. These magnets are all equally radially spaced and any two adjacent magnets are 45 degrees apart. It can be seen from Figures 2 and 3 that the orientation of the magnets 28 in the permanent or stationary magnetic holder 26 are oriented or aligned directly withe the magnets 18 of the stationary based magnetic holder 16. However, the rotating magnets 32 on rotating disk or wheel 30 are not oriented with the rotating magnets 22 of the rotating wheel 20. Rather, they are the orientation of rotatins shafts 22 with resepct to the axis of shaft 14. In other words, when a rotating magnet 32 is directly nder magnet 28 and lin injector assembly 34 as shown in Figure 3, then the rotating magnets 22 one each be halfway between tow permanent magnets 18 in Figure 2. it is noted that the interior edge of magnets 18 and 28 are curved. This is to provide clearance for the inner rotating magnets. The injector pin system 40 is very similar in construction and operation to the pin on millions of ball point pens in which one push on the pin on top of the ballpoint pen will psh the writing ball out and a second push on it will cause the ballppoinbt to retract. Figures 6 through 14 illustrate the main componetns of such an injector pin.

Attention is next directed to Figure 6 which shows an injector housing 62 screwed into a cylinder head 64. Housing 62 is hollow with an internal passage 66 having the shoulder 68 toward the lower end. The upper end of the housing is enclosed by cap 70. The reduced diameter passage portion 72 of passage 66 has a lowered tapered shoulder 74. Shown in Figure 8 is the injector pin 76. The part 76 shown in Figure 8 corresponds to the push pin or rod on top of the aforementioned ballpoint pen. The injector pin 78 has an injector head 78 which has a passage 80 therein. A tooth spring holder head 82 shown in Figure 9 fits into the space 80 as shown in Figure 6. The upper end of injector head 78 has locking teeth 83 which can mesh with locking teeth 84 of tooth spring holder head 82. The top of tooth spring holder head 82 has a spring recieing shoulder 86 for holding spring 88 as shown in Figure 6. Spring holding head 90 has four major interlocking gears 92 and four minor interlocking gears 94 equally spaced between the interlock gears 92 which have a smaller diameter than the lock gears 92 as clearly shown in Figure 7.

The interior wall of housing 62 has a series of locking pads 96 with smaller shoulder 98 as clearly shown in Figure 7 and 12 with channel 100 therebetween. Figure 10 is a view on the line 10-10 of Figure 9 and shows the interlock gears 19 which are spaced at 90 degrees and the interlock teeth 104 which are between the interlock gear 92. Figure 12 is helpful in understanding the internal view of the interior of the injector wall unrolled showing the pattern of the locking pads 96 and locking shoulder 98. Attention is briefly directed back to Figure 4 which shows the injector pin 76 mounted above injector pad 108. It will be understood that as crankshaft 14 rotates that injector pad 108 moves up and down within housing 52. In FIgure 11 the injector pad 108 has been oved upwardly by the rotation of the crankshaft where it contacts the injector pin 76 which causes it to move upwardly and in the position shown in Figure 11 the injector sleeve head 82 is free to rotate due to the action between teh sloped teeth 84 of head 82 and by the upwardly facing sloped teeth 83 of the sleeve injector head 78 and causes the holder head 82 to rotate by continued upward force until it reaches the position shown in Figure 13 which injector pin is in its cocked position. At the next contact of the pin 76 by pad 108 the holder head 82 will rotate and be free to fall with the force of the spring 82 driving it downwardly. this downward force is transmitted to the pad 108 which force is tehn transmitted to the form of rotational force to the crankshaft causing it to be driven in a rotating position. Thus, one rotating position of the crankshaft will cause the pad 108 to drived the injector pin 76 upwardly till it is cocked and the next rotation of thecrankshaft will cause the upeard movement of the pin 76 (which fell to its lower position) and the upward movement will cause the holder head 82 to rotate to an unlocked posoiton whereby the spring 88 will drive it and the pin 76 upwardly.

Attention is next directed toward the operation of this magnetic motor. Attention is first directed to Figures 19A and 19B. It will be noted that Figures 19A, 20A, 21A and 22A represent the left hand magnet orientation of those orientations shown in Figure 3 whereas Figures 20B, 21B and 22B are right hand magnet orientations or the orientations of those magnets as shown in Figure 2. When in this position as shown in Figure 19A, magnets 28 and 32 are nearly aligned but there is a magnetic force in the direction of the solid line arrow. The dashed arrows show the direction of rotation of the rotating wheel. Figure 19B as indicated the north pole of the magnet 28 is adjacent the north pole of magnet 32 so that there is a repulsive action. This is true pof all the other pairs of magnets of both the left hand magnet orientation and the right hand magnets. In Figure 19B the rotating magnet 22 is being rapidly propelled from a position adjacent magnet 18 by the force represented by the solid line arrow and in the direction indicated. Attention is now directed to Figure 15 to visualize the position of the crankshaft and the injector pads 48. In injector pin assembly 44 the pad 48A has pushed the injector drive pin 76A upwardly into the housing 34 much like indicated in Figure 11. One revolution of the crankshaft cocks the injector pin assmebly, and in the next revolution crankshaft 14 injector pad fires the injector pin. The position of the crankshaft adn injector pad 48B, 48C and 48 are also indicated. Continued rotation of the crankshaft will cause the injector pin assemblies to take the position shown in Figure 16 whereas the injector pin assembly 36 is in its top dead center position. The rotation of the rotating wheel 20 adn 30 are indicated by the broken line arrows. When the injector pin assembly is in the kick mode, it operates to kick the crankshaft and the flywheel over center once the rotational motion has been instigated. As can be seen the pin and spring which when the crank arm strikes the injector pin will force the crank arm and rotaing magnetic wheel over center. The output for the motor is then drected through gear 24 for appropriate power takeoff connections. Once it is kicked off center the propulsion force causes the wheel to rotate.

Figures 20A and 20B show the position of the magnets when pin injector assembly 36 is at its top dead center as indicated in Figure 16. Figures 21A and 21B show the position when pin injector assembly 3 is at top dead position as indicated in Figure 17. Figure 18 shows the pin injector assembly 40 at its top dead center position when the magnets are in the position shown in Figures 22A and 22B.

This motor is designed to obtain power by push and pull motion of the magnets. The magnets shown have a tendency to push inasmuch as they are like poles coming into proximity with each other. The magnets can be reversed s that the magnets will have a tendency to attract each other. The engine as described has four cylinders with 32 magnets, 16 magnets to each end. On each end there are 8 rotating magnets and 8 stationary magnets. This magnetic motor has injectors that push on the crankshaft to drive the motor over the point of magnetic pull. The particular motor which I have built is a small engine made out of aluminum, brass and stainless steel with no steel parts.

There is no limit to the size of the motor which I can build with the dimensions to the magnetic motor depending upon what size magnets that you use. The magnets can be molded into a plastic with a shaped top across the magnet and the crankshaft can be made out of ceramics. The body could also be made of plastic.

While the invention has been described with a certain degree of particularity, it is manifest that many changes may be made in the details of construction and the arrangement of components without departing from the spirit and scope of this disclosure. it is understood that the invention os not limited to the embodiments set forth herein for pusposes of exemplification, but is to be limited only by the scope of the attached claims, including the full range of equivalency to which each element thereof is entitled.

Scalar Fields

PDF Files :

Capt. Robert Collins : "Soviet Research on Unified Field Theories, False Vacuum States, and Antigravity (U)", Appendix 1 -- Far Field Equations of Maxwell's Equations.

Warren York : "Scalar Wave Technology" ; *Extraordinary Science* (Jan/Feb/Mar 1989).

Thomas Bearden : "Basic Scalar EM Concepts and a Scalar Wave Detector" ; *U.S. Psychotronics Assoc. Newsletter* 5 (4): 4-7.

Jack Dea : "Fundamental Fields and Phase Information" ; *Planetary Association for Clean Energy* 4 (5): 12-15.

J. B. Bronzan : "The Magnetic Scalar Potential" ; *Amer. J. Physics* 39 : 1357-1359 (Nov. 1971).

E.T. Whittaker : "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions" ; *Proc. London Math. Soc*., Series 2, 1 : 367-372 (1904).

A. Dolgov & I. Khriplovich : "Propagation of Electromagnetic Waves in a Gravitational Field" ; *Soviet Physics JETP* 58 (4): 671-674 (Oct 1983).

L. Kofman, *et al*. : "Inflationary Universe Generated by the Combined Action of a Scalar Field and Gravitational Vacuum Polarization" ; *Physics Letters* 157-B (5, 6) : 361-366 (25 July 1985).

Gregory Hodowanec : "Do Intense Scalar Fields Affect Life Processes?"

---

http://en.wikipedia.org/wiki/Scalar_field

Scalar Field

In mathematics and physics, a scalar field associates a scalar value, which can be either mathematical in definition, or physical, to every point in space. Scalar fields are often used in physics, for instance to indicate the temperature distribution throughout space, or the air pressure. In mathematics, or more specifically, differential geometry, the set of functions defined on a manifold define the commutative ring of functions.

Just as the concept of a scalar in mathematics is identical to the concept of a scalar in physics, so also the scalar field defined in differential geometry is identical to, in the abstract, to the (unquantized) scalar fields of physics.

Definition

A scalar field is a function from Rn to R. That is, it is a function defined on the n-dimensional Euclidean space with real values. Often it is required to be continuous, or one or more times differentiable, that is, a function of class Ck.

The scalar field can be visualized as a n-dimensional space with a real or complex number attached to each point in the space.

The derivative of a scalar field results in a vector field called the gradient.

Differential geometry

A scalar field on a Ck-manifold is a Ck function to the real numbers. Taking Rn as manifold gives back the special case of vector calculus.

A scalar field is also a 0-form. The set of all scalar fields on a manifold forms a commutative ring, under the natural operations of multiplication and addition, point by point.

Uses in physics

In physics, scalar fields can be used to ascribe forces (which are usually vector fields) to a more general scalar field, the gradient of which describes the force.

* Potential fields, such as the Newtonian gravitational potential field for gravitation, or the electric potential in electrostatics, are scalar fields which describes the more familiar forces.

* A temperature, humidity or pressure field, such as those used in meteorology. Note that when modeling weather on a global basis, the surface of the Earth is not flat, and thus the general language of curvature in differential geometry plays a role. Dopplerized weather radar generates a projection of a vector field onto a scalar field.

Examples in quantum theory and relativity

* In quantum field theory, a scalar field is associated with spin 0 particles, such as mesons or bosons. The scalar field may be real or complex valued (depending on whether it will associate a real or complex number to every point of space-time). Complex scalar fields represent charged particles. These include the Higgs field of the Standard Model, as well as the pion field mediating the strong nuclear interaction.

* In the Standard Model of elementary particles, a scalar field is used to give the leptons their mass, via a combination of the Yukawa interaction and the spontaneous symmetry breaking. This mechanism is known as the Higgs mechanism [1]. This supposes the existence of a (still hypothetical) spin 0 particle called Higgs boson.

* In scalar theories of gravitation scalar fields are used to describe the gravitational field.

* scalar-tensor theories represent the gravitational interaction through both a tensor and a scalar. Such attempts are for example the Jordan theory [2] as a generalization of the Kaluza-Klein theory and the Brans-Dicke theory [3].

* Scalar fields like the Higgs field can be found within scalar-tensor theories, using as scalar field the Higgs field of the Standard Model [4], [5]. This field interacts gravitatively and Yukawa-like (short-ranged) with the particles that get mass through it [6].

* Scalar fields are found within superstring theories as dilaton fields, breaking the conformal symmetry of the string, though balancing the quantum anomalies of this tensor [7].

* Scalar fields are supposed to cause the accelerated expansion of the universe (inflation [8]), helping to solve the horizon problem and giving an hypothetical reason for the non-vanishing cosmological constant of cosmology. Massless (i.e. long-ranged) scalar fields in this context are known are inflatons. Massive (i.e. short-ranged) scalar fields are proposed, too, using for example Higgs-like fields (e.g. [9]).

Other kinds of fields

* Vector fields, which associate a vector to every point in space. Some examples of vector fields include the electromagnetic field and the Newtonian gravitational field.

* Tensor fields, which associate a tensor to every point in space. For example, in general relativity gravitation is associated with a tensor field (in particular, with the Riemann curvature tensor). In Kaluza-Klein theory, spacetime is extended to five dimensions and its Riemann curvature tensor can be separated out into ordinary four-dimensional gravitation plus an extra set,

which is equivalent to Maxwell's equations for the electromagnetic field, plus an extra scalar field known as the "dilaton".

References

1. ^ P.W. Higgs; Phys. Rev. Lett. 13(16): 508, Oct. 1964.
2. ^ P. Jordanm Schwerkraft und Weltall, Vieweg (Braunschweig) 1955.
3. ^ C. Brans and R. Dicke; Phis. Rev. 124(3): 925, 1961.
4. ^ A. Zee; Phys. Rev. Lett. 42(7): 417, 1979.
5. ^ H. Dehnen et al.; Int. J. of Theor. Phys. 31(1): 109, 1992.
6. ^ H. Dehnen and H. Frommmert, Int. J. of Theor. Phys. 30(7): 987, 1991.
7. ^ C.H. Brans; "The Roots of scalar-tensor theory", arXiv:gr-qc/0506063v1, June 2005.
8. ^ A. Guth; Pys. Rev. D23: 346, 1981.
9. ^ J.L. Cervantes-Cota and H. Dehnen; Phys. Rev. D51, 395, 1995.

---

http://en.wikipedia.org/wiki/Scalar_field_theory

Scalar Field Theory

In theoretical physics, scalar field theory can refer to a classical or quantum theory of scalar fields. Such a field is distinguished by its invariance under a Lorentz transformation, hence the name "scalar", in contrast to a vector or tensor field. The quanta of the quantized scalar field are spin-zero particles, and as such are bosons.

No fundamental scalar fields have been observed in nature, though the Higgs boson may yet prove the first example. However, scalar fields certainly do appear in the effective field theory descriptions of many physical phenomena. Because of the relative simplicity of the mathematics involved, scalar fields are often the first field introduced to a student of classical or quantum field theory.

Although scalar fields are Lorentz scalars, they may transform nontrivially under other symmetries, such as flavour or isospin. For example, the pion is invariant under the restricted Lorentz group, but is an isospin triplet (meaning it transforms like a three component vector under the SU(2) isospin symmetry). Furthermore, it picks up a negative phase under parity inversion, so it transforms nontrivially under the full Lorentz group; such particles are called pseudoscalar rather than scalar. Most mesons are pseudoscalar particles.

In this article, the repeated index notation indicates the Einstein summation convention for summation over repeated indices. The theories described are defined in flat, D-dimensional Minkowski space, with (D-1) spatial dimension and one time dimension and are, by construction, relativistically covariant. The Minkowski space metric, ???, has a particularly simple form: it is diagonal, and here we use the + ? ? ? sign convention.

---

http://en.wikipedia.org/wiki/Scalar_field_theory_(pseudoscience)

Scalar field theory (pseudoscience)

For the quantum mechanical "scalar field theory" which is a field theory of spinless particles, see "Scalar field theory"

Scalar field theory (SFT) is a set of theories in a model which posits that there is a basic mechanism that produces the electric field and the magnetic field. Proponents of this theory claim that it advances the standard electromagnetic theory.

Scalar waves in these theories (as opposed to a scalar field in mainstream physics) are hypothetical waves, which differ from the conventional electromagnetic transverse waves by having one oscillation level parallel to the direction of propagation; they thus have characteristics of longitudinal waves. Their existence however, as presupposed in numerous theories, has not been supported by experiment. Scalar waves are called also "electromagnetic longitudinal waves", "Maxwellian waves", or "Teslawellen" (tr., "Tesla waves"). Variants of the theory claim that Scalar electromagnetics (also known as scalar energy) is the background quantum mechanical fluctuations and associated zero-point energies (in contrast to "vector energies" which sum to zero).[citation needed]

Description

Terminology

The basic understanding of scalar field theory begins with several definition of terms within the theory, which are also used in academic physics, but assigns them other meanings. A "scalar field" is a set of assigned observable magnitudes at every point in n-dimensional space (compare this with the standard definition; n is also 4 or greater). [1] An "electric field" is composed of the spinning charged mass, in motion through a finite change in electrostatic scalar potential (compare this with the current academic definition). A "potential" is pure energy and, is any ordering (static or dynamic) in the vacuum (eg., the position of the object relative to other objects). A "scalar potential" is the stationary ordering in the virtual particle flux of the vacuum (compare this with the current academic definition). A "vector potential" is any nonstationary ordering in the virtual particle flux of vacuum (compare this with the current academic definition). Scalar potentials and vector potentials are thus defined as: "contained" inside the energy domain.[citation needed]

Magnetic fields interaction

SFT is based on "non-symmetrical regauging" potentials, demonstrated by the interaction of two magnetic fields.

When the field lines oppose each other, the magnets are pulled together. When the fields are aligned in the same direction, the magnets push apart. When two magnets strongly oppose each other but are not permitted to move apart, the force between them is said to create a "scalar bubble" between the magnets. The greater the repulsive force, the larger this scalar bubble becomes. As the magnets move away and the pushing force decreases, the scalar bubble shrinks in size and strength.

In a similar manner, two magnets that are strongly attracted create a "scalar void" between them that grows larger the closer the two magnets become. Two magnets powerfully attracted to one another create a very large scalar void, that decreases as the attracting magnets are moved apart.

Despite the claims of its proponents, no repeatable experiments were able to show the existence of the scalar field. All observed effects were shown to comply to the standard physical laws of electrodynamics. The observations are in spectacular agreement not only with classical electromagnetics, but also with quantum electrodynamics, both of which are fields of physics.

Field effects of scalar energy

SFT suggests that scalar energy can move through space much like an electromagnetic wave. However, the operating principles are different. The regular expansion and contraction of a scalar bubble/void is like rhythmicly splashing water on a pond. It sends out ripples through the general scalar field that can subtly affect the size and strength of distant scalar bubbles/voids.

This means that a pair of magnets that are rhythmically opposing/attracting each other are sending out scalar ripples through space that will slightly perturb the scalar bubble/void between a second pair magnets nearby. The net effect is that the attraction and/or repulsion between the second pair of magnets exhibits a change in strength, even though the magnets and fields themselves are motionless.

According to skeptics, the following description given for an application to a communication system reportedly failed to give reproduceable results.

A basic scalar communications system

A scalar communications broadcast antenna does not make any sense according to normal electromagnetic theory. The goal of a scalar broadcast antenna is to create powerful repulsion/attraction between two magnetic fields, to create large scalar bubbles/voids. This is done by using a broadcast antenna with two opposing electromagnetic coils that effectively cancel out as much of each other's magnetic field as possible. An ideal scalar broadcast antenna will emit no electromagnetic field (or as little as possible), since all power is being focused into the repulsion/attraction between the two opposing magnetic fields. Normal electromagnetic theory suggests that since such a device emits no measurable electromagnetic field, it is useless and will only heat up. For a scalar broadcast antenna, any normal RF emission is wasted energy.

A scalar reception antenna similarly excludes normal electromagnetic waves and only measures changes in magnetic field attraction and repulsion. This will typically be a two-coil powered antenna that sets up a static opposing or attracting magnetic field between the coils. The coils are counter-wound so that any normal RF signal will be picked up by both coils simultaneously and effectively cancel itself out, leaving only the scalar component.

Scalar field detection by normal RF antennas

Even though a scalar wave train does not contain the regular EM components that are used by radio frequency communications, it can still be detected by a normal RF antenna, if that antenna is in the presence of some other static magnetic field. When the scalar wave train passes through, it will create a disturbance in the field surrounding that magnet and make the field lines move, which will impart a small electrical current in the standard RF antenna, as if the magnet itself were moved.

Since all normal RF antennas are immersed in the magnetic field of the planet, they can serve as crude scalar detectors, though the reception will be extremely weak and washed out by any normal RF in the vicinity. Detection ability is greatly increased by enclosing the antenna and circuitry in a faraday cage, and by placing a very strong magnet near the antenna inside the cage.

Scalar antennas and detectors

Various proponents have claimed to have developed instruments with characteristics and specifications for different designs. Scalar antenna and detector examples include:

Types [2]

* Magnetostatic Detectors
* Electrostatic Detectors
* Barkhausen Detector

Windings [3]

* single-wire bifilar
* dual-wire bifilar
* pancake bifilar
* cone bifiliar

Proponents of the theory have constructed bifiliar test antennas as isolation transformers. These have taken the form of a ferrite rod, ferrite ring, an air core, or the common square transformer shape.

References

1. ^ T. E. Bearden, "Scalar field". A partial glossary for scalar electromagnetics and subtle phenomena, 1988 (updated 2000).
2. ^ Robert Shannon, "Notes on Scalar Detector Designs". 1996.
3. ^ More Electromagnetism : Scalar Waves". RMCybernetics, 2005.

---

http://www.rense.com/general84/ben.htm

Benjamin Fulford's 'Creature' (?)

From **Brad Steiger**
1-26-9

Absolutely Bizarre 'Creature' In Benjamin Fulford's Spine

On Friday, January 23rd, Benjamin Fulford shocked the audience of the Jeff Rense Program by emailing the claim, accompanied by a photograph, that surgeons had removed a bizarre life form, very much resembling a salamander, from his spine. Those who could view the strange creature were shocked and horrified. Immediately, everyone who saw the "thing" wondered what it was--and if it were real.

Whether the creature was real or whether it was an ill-advised hoax, I wanted to find out if it was possible to place or to inject such a life form into an unsuspecting victim. One of the experts that I queried was a top-research scientist and inventor, who quickly responded that not only was it possible to inject the embryo of a parasite into a targeted victim without his or her knowledge, but that in the world of deep black operations, Russian scientists had already perfected such grotesque methodology.

I asked the scientist to come on the Rense Program and discuss the science of bioenergetics being developed for Black Ops projects, but he informed me that he had been placed under "very strict warnings" not to make any appearances on any radio or television program. What he did do was to write a very informative email on the incredible world of bioenergetics and psychoenergetics which I reproduce below with his special permission. At the present time, he prefers to remain anonymous.

Yes, Brad, the "embryo" for such a "new living parasite critter" could indeed be developed and inserted into a targeted victim, including at a great distance, but only by the highly "clandestine" world of the off-budget deep black operations -- particularly those in Russia, which are still far ahead of anything in the West.

The Russian science of "energetics" -- developed shortly after WW II by a tremendously massive Soviet effort of some of the best nonlinear scientists on earth -- did solve some of the perplexities of our modern physics, of psychology and biology, etc. And under Stalin's iron boot, the new and spectacular Russian scientific developments were immediately placed into extended weapons development.

To this day, our own more-materialistic scientists still do not really comprehend Soviet energetics. (And they also still do not even know what a mind actually is, what a "dead" (separated) mind is, or what a "mind and body linked living system" really is).

Soviet energetics had three branches: (1) the science of inert matter, called by the same name "energetics". (2) the science of living biological systems, where a mind is linked to a living body. This branch is called "bioenergetics". (3) the science of the mind and mental phenomena, which is called "psychoenergetics".

Western science, being so materialistic, has not yet comprehended the most important thing about "mind": that is, that the mind and mental things exist in time, but not in 3-space.

If one turns to modern quantum field theory, then there are now FOUR photons available, not the two transverse photons so well known to classical electrodynamicists etc. In the following discussion, the travel direction of the photon in 3-space is assumed along the Z axis. The "regions of vibration" of the photon -- i.e., the type and direction of its oscillation -- may occur in four ways. These are (1, 2) the two "orthogonal" oscillation polarizations, one along the X-axis and the other along the Y-axis. Then there is (3) the longitudinal (i.e., longitudinally-polarized) photon, which oscillates along the Z-direction of travel itself. And finally there is (4) the time-polarized or "scalar" photon, which oscillates along the time axis. These four photons are all in standard quantum field theory, even in the West.

Now note that only the two transverse-polarized photons (1) and (2) are observable by our instruments. The longitudinal (3) photon is nonobservable, as is the time-polarized (4) photon.

Here's the first "magic":

A combination of a longitudinal photon (3) and a time-polarized photon (4) is OBSERVABLE AS A SPIKE OF VOLTAGE -- more precisely, a spike of electrostatic scalar potential.

Now suppose you have a hidden (nonobservable) electromagnetic "system" you have built in the time-domain, so that it is built only of time-polarized photons. The system is not observable, nor is any part of it observable.

But then suppose you also build a corresponding set of operations (a "system") in 3-space matter so that this new EM system consists only of longitudinal photons. And suppose you have made this "longitudinal" photon system's operations so that they exactly parallel the time-domain system's operations. In short, you now can superpose your longitudinally-polarized EM wave system and the time-polarized EM wave system. And your instruments will now observe the combination -- i.e., the actual ongoing linkage system's operation -- as a very strange but highly organized system of voltage spikes!

The West has totally missed the fundamental characteristic of mind: Mind occupies time but not 3-space. Hence, mind is a totally "electromagnetic" system, but it is comprised of only non-observable time-polarized photon operations!

Well, how could you possibly couple that mind to a biological (3-space) material body?

You would have to have a parallel longitudinally-polarized set of electromagnetic operations ongoing in that 3-space body.

And the direct coupling of those two "operational systems" would be the mechanism of the coupling of the mind to the body -- and it would and could be directly observed by our instruments as a correlated system of voltage spikes!

And that is why the dendrite cells of the body all have so many endings and "continual and incredible voltage spikings"! In looking at the entire set of spiking, you are looking at the "coupling mechanism" (that couples the mind to the body) in action! That set of spikings is what links or couples (coherently) the living temporal mind to the living biological body!

Now if you place great scientific effort on that area and in that fashion, for some decades, you will eventually be able to (1) directly produce an operating living mind in the laboratory, including a human mind and any version of it, and (2) link it to a properly designed biological body (to a proper set of longitudinal operations therein), and this will give you a living biological system created directly in the laboratory.

In about 1990, the Russian hidden psychoenergetics science had progressed to the point that living minds were being designed and produced in the laboratory, including various "versions" (personalities) of a given mind.

If one knows where to look, there is and has been quite a bit of external "testing" by the Soviets to stimulate the West and see if we recognize what is being done (in short, to see whether the West also has developed such science). Sadly, the provocative tests have clearly shown the Soviets that we do not have such capabilities or such scientific development. Indeed, we still do not even recognize that "testing" is even going on!

One of the New Energy scientists--Tom Bearden--stumbled onto a portion of this Soviet energetic work. In his 2005 book, Oblivion: America at the Brink, Bearden gave an abbreviated presentation of the development of the energetics weaponry and some of the actual "evocative testing" examples. There are many more weapons and examples that he did not run across.

Presently, the Russians can clandestinely duplicate the mind of a targeted individual, in the duplicate mind they can "alter" portions to produce "different behavior" if that alternate mind is inserted into the targeted individual in the West, and then they can do several things. (1) they can just leave it in that individual as an extra "multiple personality," so they have the 'perfect spy" that hears everything the person's ears hear, sees everything his eyes see, and also receives all the thoughts that his true mind thinks. And they can put that on the TV screen in Moscow if they wish. With the portion for which he actually encountered evidence, Bearden gave examples of the military use of such capabilities in Oblivion.

Sadly, the West still thinks that the human "mind" is just some electron wiggles in the brain, and that we are like a giant "nonliving" computer.

There is also a way to directly engineer any physical observable system one wishes, in any part of it, living or nonliving. One can directly engineer and change inert matter or living matter, etc. I have learned that Bearden plans a future book (hopefully this year) dealing with this scientific methodology, which he calls "precursor engineering", but which the Soviets still have embedded in its term "energetics" with its associate science (and weapons).

Once you understand something about this 3-fold secret weapons science of energetics that the Soviets have highly developed, then you can understand how -- with such developed technology

-- one could directly build both the physical body system (its correlated longitudinal EM photon system) and the "mind system" of such a "living critter" one creates in the laboratory, and how one could then use such capability (such weird and artificially-created critters) by sudden surprise on an unsuspecting enemy to overwhelm and crush him almost instantly.

As you can see, we are referring to a gigantic leap forward in what the West calls "biological weapons" and in "biological warfare".

Well, one should be looking for "very strange incidents" suggesting the development of such "critters" and parasites. And here is at least one "candidate" occurrence.

This present "incredible tumor" discovery [in Benjamin Fulford's spin] may be the discovery of one "provocative test" of these capabilities, just to see what our western science and biological warfare experts make of it.

And if it is a "provocative test" to see what we know, of if we know anything of it at all, we have certainly once again assured them we have not the foggiest notion of the true reach of Soviet energetics science.

WO2008092205
METHOD AND APPARATUS FOR ANALYSING GEOLOGICAL FEATURES

Inventor(s): DUNCAN ANDREW [AU]
Classification: - international: G01V3/00; G01V3/15; G01V3/16; G01V3/17; G01V3/00; G01V3/15 - European: G01V3/165

Abstract -- An apparatus (10) for analysing geological features comprises a receiver (20) for measuring a magnetic field received from adjacent geological features (18) excited by a periodic transmitted electromagnetic signal, wherein the measured magnetic field is a scalar amplitude of the magnetic field or a scalar amplitude of the magnetic field is derivable from the measured magnetic field, wherein the receiver generates a received signal from the measured magnetic field; and a processor (28) for filtering unwanted signal components which are substantially synchronous with the periodic transmitted electromagnetic signal from the scalar amplitude of the received signal or the scalar amplitude derived from the received signal, such that target geological features are able to be analysed using the filtered scalar amplitude.

WO2008060213
METHOD FOR PREDICTING WHERE THE NEXT MAJOR EARTHQUAKE WILL TAKE PLACE WITHIN AN AREA

Inventor(s): SLUNGA RAGNAR [SE]
Classification: - international: G01V1/28; G01V1/00; G01V1/28; G01V1/00- European: G01V1/00E

Also published as: WO2008060213 // SE0602417 (A) // SE530569 (C2)
Abstract -- The present invention relates to a method of predicting where the next major earthquake will occur within a area based on knowledge of the stress tensor field in the area, including determining stress tensors that have caused a shear slip in the form of an earthquake. It is first assumed that said first shear slip is the only one that is not stable according the Mohr-Coulomb slip criterion applied to contenplated fault planes with all conceivable orientations and calculating according to the Mohr- Coulomb slip criterion the principal stress directions as a function of the friction coefficient f. After that, it is established according to the Mohr-Coulomb slip criterion a relationship between two of the principal stresses.; Moreover the normal stress sv in a known direction Sv is determined and, according to the elasticity theory, a relationship between the normal stress sv and the principal stresses is established. Then expressions of the three principal stresses as a function of a scalar parameter is established, and a function of the elastic deformation energy per unit of volume relative to an isotropic reference stress state with the pressure sv based on the expressions of the principal stresses is established. Finally, the remaining degree of freedom is eliminated by determining the value of said scalar parameter which minimises the function of the elastic deformation energy and the value of the scalar parameter in the expressions of the principal stresses is inserted.

WO2008050137
MAGNETIC SIGNATURE ASSESSMENT

Inventor(s): TWELVETREES ROGER [GB]; COX EMILY [GB]; GANDERTON CARL [GB]; RAWLINS PAUL [GB]; WATSON STEPHEN MILES [GB]
Classification: - international: B63G9/06; B63G9/00 - European: B63G9/06
Also published as: GB2443265 (A)
Abstract -- Magnetic signature assessment apparatus for a vehicle comprising sensors for incorporation in the vehicle to measure the magnetic field normal to a closed surface at least approximately bounding the vessel and processing means for calculating from the normal field measurements a scalar magnetic potential outside the surface. Apparatus may be provided on the vehicle to generate a magnetic field to suppress the magnetic signature corresponding to the scalar potential. The invention also extends to corresponding methods and to programs for implementing those methods.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A&date=20060810&NR=2005105859A&DB=EPODOC&locale=en_EP&CC=RU&FT=D

RU2005105859
LONGITUDINAL-SCALAR ELECTROMAGNETIC WAVE RADIATING DEVICE

Applicant(s): KUZNETSOV JURIJ NIKOLAEVICH
Classification: - international: H01Q13/02; H01Q13/00
Also published as: RU2287212

Abstract -- FIELD: radio communications and radiolocation, geological prospecting, and medicine. ^ SUBSTANCE: proposed radiating device is provided with second waveguide and second exciting component; exciting components are installed in waveguides which have different length and are brought to single plane through their open ends and further through return horn to equally shaped adding waveguide terminating in horn. Waveguides differ by half-length of common radiated electromagnetic wave. In planar-wave approximation strength vectors of electric and magnetic fields are oriented in longitudinal-scalar electromagnetic wave in open space collinearly to vector of electromagnetic energy flux density (S = Ei ¦Hi¦ + Hi ¦Ei¦).Irrotational electric field of longitudinal electromagnetic wave builds up potential difference across open electric conductor longitudinally oriented to this field.; Magnetic field of longitudinal-scalar electromagnetic wave acts upon moving electric charges by force directed along their velocity vector. ^ EFFECT: enhanced reliability due to use of irrotational longitudinal-scalar electromagnetic waves apart from rotational cross-vector ones.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A1&date=20050908&NR=2005197808A1&DB=EPODOC&locale=en_EP&CC=US&FT=D

US2005197808

Method for determining electrical and magnetic field effects

Inventor(s): KUO, AN-YU
Classification: - international: G06F17/10; G06F17/10; (IPC1-7): G06F17/10
Abstract -- A method for determining electrical and magnetic field effects determines Lanczos matrices by performing a preconditioned conjugate gradient method using a nested multi-grid, vector and scalar potential preconditioner so that Pade via Lanczos frequency expansion may be used to determine the electrical and magnetic field effects over a frequency range without having to perform computationally slow and memory intensive matrix decomposition.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A1&date=20040311&NR=2004046553A1&DB=EPODOC&locale=en_EP&CC=US&FT=D

US2004046553

Vector Measurement of a Magnetic Field

Inventor(s): LEGER JEAN-MICHEL [FR]; GRAVRAND OLIVIER [FR]; BERTRAND FRANCOIS Classification: - international: G01R33/24; G01R33/24; (IPC1-7): G01V3/00 - European: G01R33/24
Also published as: US6844726 // FR2815416 // FR2815416 // WO0233434 // EP1344075
Abstract -- A vectorial magnetometer (1), measures the components of a magnetic field in three directions (Oxyz) using a scalar magnetometer (2). The field is periodically modulated in each of the directions by generators (Gx, Gy, Gz) which have a specific frequency for each direction and that power coils (Ex, Ey, Ez). Synchronous demodulation of the of the output signal of the scalar

magnetometer (2) for each of the three frequencies permits the relative continuous component of each axis to be found.; The vectorial magnetometer (1) is characterised in that it has means (Dx D'x, Dy D'y, Dz D'z) that can carry out a double demodulation for phase and quadrature for each of the frequencies and processing means (70) that use the continuous component modules for phase and quadrature to calculate a transfer function of the scalar magnetometer at the frequency in question, and to apply this function to the correction of the components.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A1&date=19991215&NR=0964260A1&DB=EPODOC&locale=en_EP&CC=EP&FT=D

EP0964260

Device for Measuring Magnetic Field Components Comprising a Scalar Magnetometer

LEGER, JEAN-MICHEL
Classification: - international: G01R33/26; G01R33/24; (IPC1-7): G01R33/26 - European: G01R33/26
Also published as: FR2779530 // US6313628 // CA2274623
Abstract -- The system uses a scalar magnetometer with additional fields applied by external coils, which are arranged with mutually orthogonal axes. The system for measuring the components of a magnetic field includes a scalar magnetometer (10,14,16,21,24,26,30,40,46,56). This magnetometer provides an output signal corresponding to the modulus of the applied magnetic field. There are also at least two conducting coils (Ex,Ey,Ez) disposed around the scalar magnetometer with mutually orthogonal axes. Each coil is supplied with a current at a given frequency. Processing circuits (Dx,Dy,Dz) receive the signal produced by the magnetometer and effect synchronous demodulation of the signal at the respective frequencies, to provide signals (Bx,By,Bz) corresponding to the components of the magnetic field which exists in this region.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A&date=19991105&NR=11306328A&DB=EPODOC&locale=en_EP&CC=JP&FT=D

JP11306328

METHOD AND DEVICE FOR GENERATING TWO-DIMENSIONAL SCALAR FIELD

KAWAI, NAOKI
Classification: - international: G03F1/00; G06T1/00; G03F1/00; G06T1/00; (IPC1-7): G06T1/00; G03F1/00
Abstract -- PROBLEM TO BE SOLVED: To extract flow of each conduit from a conduit picture to generate a two-dimensional scalar field. SOLUTION: Conduits are extracted from the conduit picture one by one (S2), and representative points and values of flow are defined for each conduit, and respective values of flow are registered in positions corresponding to these

representative points in a separately prepared two-dimensional area, and values of flow in other positions of the two-dimensional area are interpolated based on registered values of flow and their positions (S5), thus generating a two-dimensional scalar field.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A&date=19981201&NR=5845220A&DB=EPODOC&locale=en_EP&CC=US&FT=D

US5845220

Communication method and apparatus with signals comprising scalar and vector potentials without electromagnetic fields

PUTHOFF, HAROLD
Classification: - international: H01Q7/00; H04B5/00; H01Q7/00; H04B5/00; (IPC1-7): H04B1/00
- European: H01Q7/00; H04B5/00
Abstract of US 5845220 (A)
Information that changes as a function of time is communicated from a transmitting site to a receiving site by transmitting a signal comprising scalar and vector potentials without including ay electromagnetic field. The potentials vary as a function of time in accordance with the information.

---

http://v3.espacenet.com/publicationDetails/biblio?KC=A&date=19751202&NR=3924210A&DB=EPODOC&locale=en_EP&CC=US&FT=D

US3924210

Field Shaping Magnet Structure

1975-12-02
Inventor(s): DIONNE NORMAN J
Classification: - international: H01J31/50; H01F7/02; H01F7/20; H01J29/64; H01J31/08; H01F7/02; H01F7/20; H01J29/58; (IPC1-7): H01F7/02- European: H01F7/02C1; H01F7/20
Also published as: NL7512795 // NL7512795 // NL172496 // NL172496 // JP51067961

Abstract -- A magnet structure having a pair of spaced pole pieces interconnected by a reluctor circuit comprising an operatively aligned array of soft magnetic members suitably spaced apart by interposed nonmagnetic material to provide between the pole pieces a preferred magnetic scalar potential and an associated magnetic flux distributed as desired over a relatively large volume adjacent the array.

---

http://amasci.com/hum/adetect.txt

Date: 10 Feb 97 18:50:04 EST
From: "Sara T. Allen"
To: Taos Hum list serve <taoshum-l@eskimo.com>

Subject: Scalar fields - Honeywell Patent Numbers

List of patents by Raymond C. Gelinas but assigned to Honeywell:
(note that a Vector Potential is a scalar field)

4,429,280
31 Jan 1984
Apparatus and Method for Demodulation of a Modulated Curl-Free Magnetic Vector Potential.

4,429,288
31 Jan 1984
Apparatus and Method for Modulation of a Curl-Free Magnetic Vector Potential Field.

4,432,098
14 Feb 1984
Apparatus and Method for Transfer of Information by Means of a Curl-Free Magnetic Vector Potential Field.

4,447,779
8 May 1984
Apparatus and Method for Determination of a Receiving Device Utilizing a Curl-Free Magnetic Vector Potential Field.

4,605,897
12 Aug 1986
Apparatus and Method for Distance Determination Between a Receiving Device and a Transmitting Device Utilizing a Curl-Free Magnetic Vector Potential Field.

4,491,795
1 Jan 1985
Josephson Junction Interferometer Device for Detection of Curl-Free Magnetic Vector Potential Fields.

Also, you can find a good article in Scientific American of April 1989, pp. 56-62, "Quantum Interference and the Aharonov-Bohm Effect" by Yoseph Imry & Richard Webb.

Another one:

US5845220: Communication method and apparatus with signals comprising scalar and vector potentials without electromagnetic fields , H. Puthoff http://www.unusualresearch.com/scalarbib/scalarbib.htm

Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in in the Quantum Theory," The Physical Review, vol. 115, no. 3, Aug. 1959.
Abstract: In this paper, we discuss some interesting properties of the electromagneticpotentials in the quantum domain. We shall show that, contrary to theconclusions of classical mechanics, there exists effects of potentials oncharged particles, even in the region where all the fields (and therefore theforces on the particles) vanish. We shall then discuss possible experiments totest these conclusions; and, finally, we shall suggest further possibledevelopments in the interpretation of the potentials.

Yoseph Imry and Richard A. Webb, "Quantum Interference and the Aharonov-Bohm Effect," Scientific American, vol. 260, no. 4, Apr. 1989.
Abstract: Can electrons be influenced by a nearby magnet so well shieldedthat its force field cannot be detected? The counterintuitive answer is yes:an energy emanation from the magnet known as the potential does indeed affectthe electrons' wave function. This quantum-mechanical effect is being brought tobear on the development of new microelectronic devices.

Capt. Robert M. Collins (TQTR), "Soviet Research On The A-Vector Potential and Scalar Waves (U)," Unknown.
Abstract: Active in the areas of the Aharonov-Bohm effect as applied to the A-vector potential and scalar fields as applied to solving force related problems.

Capt. Robert M. Collins (TQTR), "Soviet Research On Unified Field Theories, False Vacuum States, and Antigravity (U)," Unknown.
Abstract: Theoretical progress in dealing with unified field theories...new concepts in weapons, transportation, propulsion

Dr. Jack Dea, "Fundamental Fields and Phase Information," P.A.C.E. Newsletter, vol. 4, no. 3 (Planetary Assoc. f. Clean Energy)

K.J. van Vlaenderen, "Electrodynamics with the scalar field," Sep. 2001.
Abstract: The expressions of the electric and magnetic fields, that can be derived from the Li'enard-Wiechert potentials, are in good agreement with experiments. Surprisingly the Li'enard-Wiechert potentials do not satisfy the Lorenz gauge condition, therefore they cannot be regarded as solutions of the Maxwell equations in the Lorenz gauge, but only as solutions of the inhomogeneous potential wave equations. Therefore, the inhomogeneous potential wave equations should be regarded as a separate set of differential equation that are unconnected with Maxwell's equations. In order to simplify this theory of classical electrodynamics we propose a generalization of Maxwell's equations, such that a gauge of the potentials is unnecessary in order to derive the Lorenz inhomogeneous potential wave equations. This generalization can be described as a conditional current regauge that does not violate the conservation of charge. This has several consequences: - the generalized Maxwell equations also contain scalar field terms. - the prediction of a longitudinal electro-scalar wave (LES wave) in vacuum. - a generalized Lorentz force expression that contains an extra scalar term. - generalized energy and momentum theorems, with an extra power flow term associated with LES waves.

E. T. Whittaker in Cambridge, "On the partial differential equations of mathematical physics," vol. 57, pp. 333-355, Nov. 1903.
Although as much care as possible was taken in its reproduction, no warranty is expressed or implied as to the suitability or accuracy of this document for any purpose whatsoever.

CAVEAT: There are what appear to be errors in the original. Those that are changed are noted here. Spelling and other obvious errors remain as in the original.
On Page 346: The first double integral was missing the 'x' on the 'x sin u cos v' term of the first argument of f().
Frank Lofaro gives the 1903 paper this description: 1903 paper on potentials being composed of harmonic phase-conjugate scalar pairs.
He also gives the 1904 paper this description: 1904 paper on EM waves being composed of two scalars.

E. T. Whittaker in Cambridge, "The Electromagnetic Field Due to Electrons by Means of Two Scalar Potential," pp. 367-372, Nov. 1904.
Although as much care as possible was taken in its reproduction, no warranty is expressed or implied as to the suitability or accuracy of this document for any purpose whatsoever.
CAVEAT: There are what appear to be errors in the original. Those that are changed are noted here. Spelling and other obvious errors remain as in the original.
The equation in the middle of page 368 appears to be in error in the original. The "c-square, del-square, a-sub y" term is missing the superscript 2 on the del in the original paper. From looking at the other equations in the group, it seems like it should be squared also.

Concetto R. Giuliano, "Applications of optical phase conjugation," Physics Today, vol. 34, no. 4, pp. 27-35, Apr. 1981.
Abstract: Light waves that are, in effect, time-reversed images of their original can serve to restore severely aberrated waves to their original state.

Dr. Harry E. Stockman, "Plasma-diode experiments," Ham Radio, Feb. 1980.

GSC-12645, "Precise Phase Comparator for Nearly Equal Frequencies," NASA Tech Briefs, Fall/Winter 1981, vol. 6, no. 3, Nov. 1981.

Dwight W. Batteau and Peter R. Markey, "Man/Dolphin Communication Final Report," Dec. 1966.
Abstract: Research intended to determine the feasibility of establishing a language, approaching English, between man and dolphin. Neurophone like circuit in Appendix-A.

http://www.eskimo.com/~billb/freenrg/bark.html

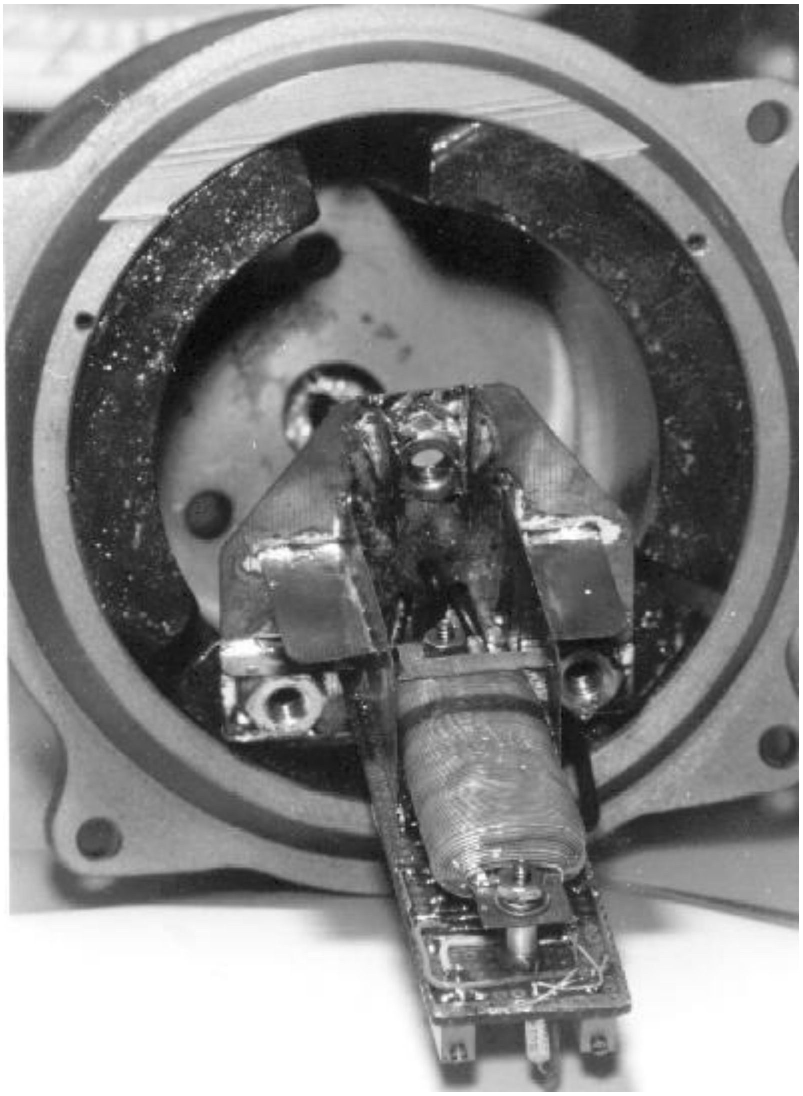
http://www.textfiles.com/bbs/KEELYNET/ENERGY/reply2.asc

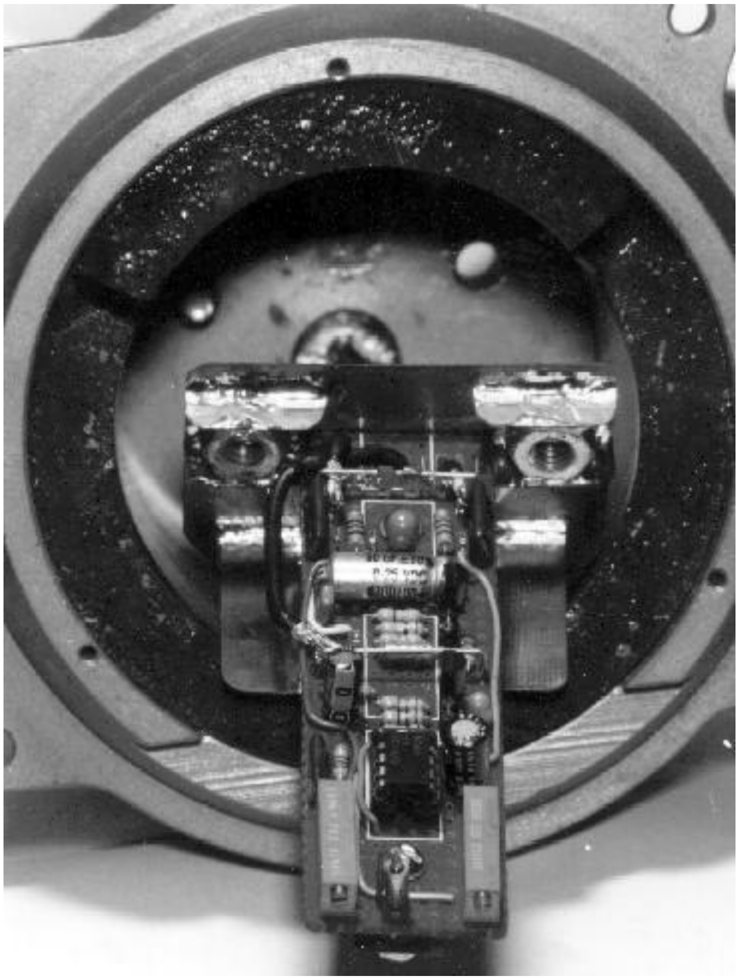
http://www.textfiles.com/bbs/KEELYNET/ENERGY/replytvq.asc

http://www.textfiles.com/bbs/KEELYNET/BIOLOGY/health1.asc

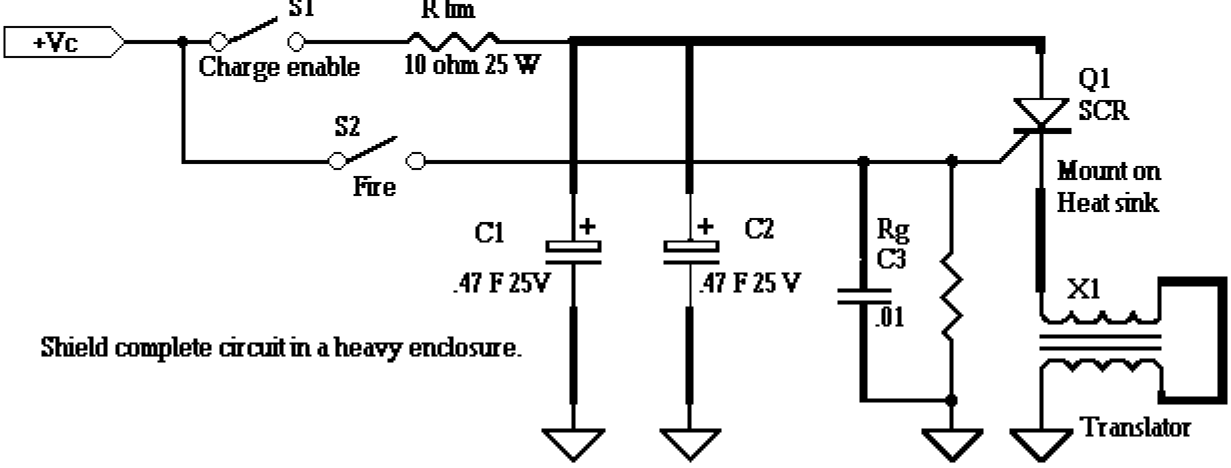
http://www.textfiles.com/bbs/KEELYNET/BIOLOGY/warning1.asc

Barkhausen Effect Scalar Detector

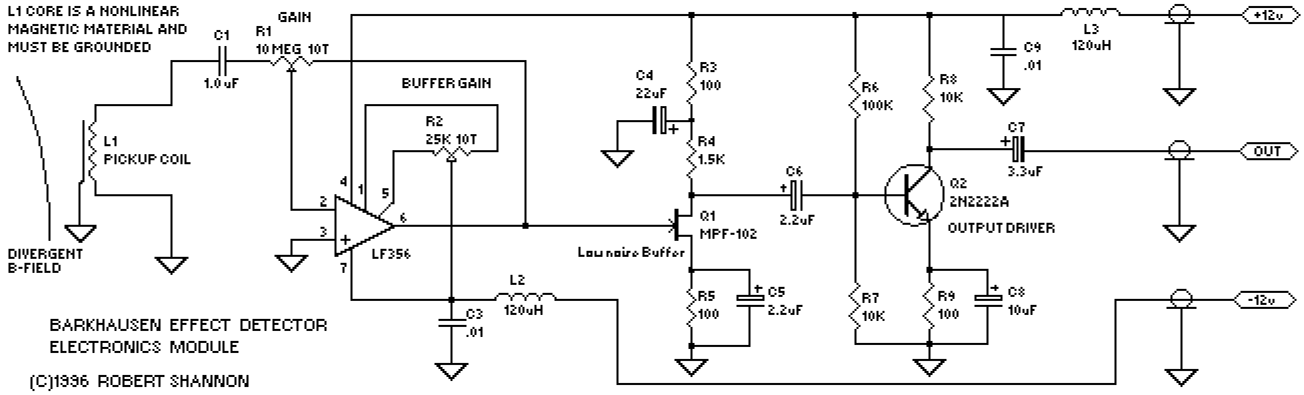


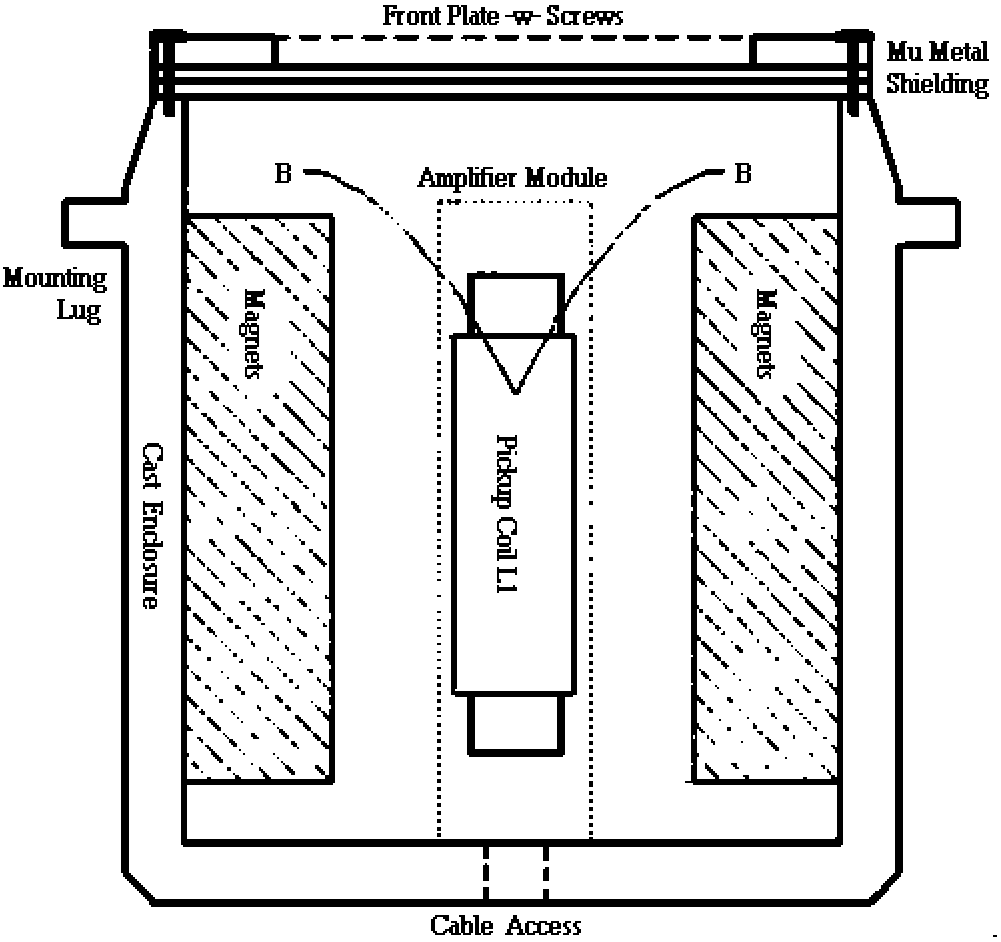


Scalar Test Pulse Generator



Shield complete circuit in a heavy enclosure.


L1 CORE IS A NONLINEAR MAGNETIC MATERIAL AND MUST BE GROUNDED
DIVERGENT B-FIELD
L1
PICKUP COIL
C1
1.0 uF
R1
10 MEG 10T
GAIN
BUFFER GAIN
R2
25K 10T
4
1
5
2
3
6
7
LF356
C3
.01
L2
120uH
C4
22uF
R3
100
R4
1.5K
Q1
MPF-102
Lounaire Buffer
R5
100
C5
2.2uF
C6
2.2uF
R6
100K
R7
10K
R8
10K
R9
100
C8
10uF
Q2
2N2222A
OUTPUT DRIVER
C7
3.3uF
C9
.01
L3
120uH
+12v
OUT
-12v
BARKHAUSEN EFFECT DETECTOR
ELECTRONICS MODULE
(C)1996 ROBERT SHANNON


Front Plate -w- Screws
Mu Metal
Shielding
B
Amplifier Module
B
Mounting
Lug
Magnets
Magnets
Pickup Coil L1
Cast Enclosure
Cable Access

Karl SCHAEFFER

Steam Generator

---

(1) *NewsReal*: "Super Steam-Making Machine Eliminates Need for Boilers"
(2) US Patent # 3,791,349: Steam Generator
(3) Comments & Notes

***NewsReal* (#2, June 1977)**

"Super Steam-Making Machine Eliminates Need for Boilers"

by **Tom Valentine**

A technology is available that can effectively eliminate any need for using natural gas to heat water, homes or industry. It is a machine that can solve many of the energy problems which became so glaringly apparent last winter.

The device is a steam generating machine invented by the late Karl Schaeffer of Chicago. Schaeffer's method of making super-heated steam is instantaneous and will economically eliminate all need for huge boilers and direct use of fossil fuels.

Schaeffer's electrically powered steam machine also makes all the millions of constantly burning pilot lights obsolete.

Among the ore than 500 applications for steam, the Schaeffer device can effectively heat a modern home with 20% less electricity than is now required.

This machine makes super-heated steam from running cold water instantly and without burning up a great deal of energy.

Sounds impossible, doesn't it?

Credibility has been one of the key problems faced by Sonaqua Inc, the small firm that is attempting to develop and license the late inventor's lifetime dream.

Engineers instinctively draw a blank when confronted with the claims of the Sonaqua group. Schaeffer accomplished something different; something that was not found in the textbooks.

Karl Schaeffer was 67 years old when this reporter first interviewed him and photographed his demonstration in 1973. The story was not told sooner because Sonaqua Inc wanted the product fully developed before publicizing what they had.

The device is still not fully developed, but the story needs telling and our nation needs this new form of energy.

Karl Schaeffer found a way to harness some tremendous natural force which is inherent in molecules of water. There is no other way to state his principle.

"It all started for me when I was a graduating student of the trade-technical school in Berlin. The year was 1924", Schaeffer said in his thick German accent.

"I was in the washroom and when I turned off the water I heard the pipes knock", he said, referring to what engineers call "water hammer", a phenomenon in pipes that technology tries to eliminate.

"It was a loud knock and my mind suddenly said -- there is energy in that water hammer! And from that moment on, I was hooked."

"Of course I wondered if there was a way to harness such an energy, and I began my life-long quest -- well, it took me 50 years, but I have harnessed that energy and it can power the world.

"My machine can actually run forever so long as water continues to flow into it. Unlimited power! Free energy! Think of it!"

Karl Schaeffer was excused by his aides for "exaggeration". "Exaggeration my foot", Schaeffer bellowed. "I know what I have seen!"

The inventor had an unexplained engineering phenomenon occur four separate times during the years he was trying to perfect his device. He turned off the electric power to the motor, but the machine kept running until the water in the tank was gone.

Enough power sprang from within his mechanism to continue pouring forth steam from cold water and turn all the mechanical apparatus as well -- with the power off!

Those unexplained incidents led Schaeffer to make claims considered "wild" by other. But even if he was deluded, which does not appear to be the case, his machine is by far the most efficient means of making steam ever devised by man.

Karl Schaeffer did it the hard way -- but after coming to America from his native Germany and devoting all his time and a considerable family fortune to his "mechanical obsession", he finally harnessed that simple shock wave in water phenomenon.

"It appears that this device actually makes use of two principles engineers try to eliminate -- water hammer and cavitation", noted Dr. Tom Hunter, former professor of Mechanical

Engineering at Illinois Institute of Technology when he watched a demonstration of the Schaeffer machine

"The force in the water is always there -- I have learned to use it, to intensify and use it", Schaeffer said emphatically.

One expert in engineering, chemistry and physics while watching the Schaeffer machine spin and spew forth steam said:

"I believe he is releasing energy that is inherent in molecules of water and this puts us on the verge of a totally new concept of energy utilization."

Essentially it is apparent that the vibrational and shock-wave nature of water can be used as a source of additional energy.

The Schaeffer machine is run by an electric motor that spins a metal disc. Cold water runs into the spinning flywheel where specially designed chambers cause an extremely rapid series of shocks to occur -- literally shocking the water into superheated steam.

Schaeffer demonstrated this energy conversion device in his machine shop on Belmont Avenue in Chicago for this reporter a number of times. The device was crude and inefficient next to some later models made by Bob Price of Sonaqua, but it was impressive nonetheless.

"You just watch what happens", the old man said proudly as he stepped up to his floor-mounted machinery. "You know how long it takes to boil water on your stove, don't you?"

I nodded that I understood a little about boilers, heaters and making steam.

"Feel this", he ordered and I put my hand on some pipes leading into the device from a water tank. It was cold -- tap water cold.

A 20-horsepower electric motor was mounted beneath the heavy metal rotary impeller. A pipe protruded from the opposite side of the disc and bent up and out a window.

Schaeffer pulled a switch and I witnessed an amazing energy conversion -- something totally new to the annals of engineering. The motor whirred and Schaeffer tinkered with a valve for about 20 seconds, then before half a minute had elapsed superheated steam spewed forth and cascaded out the window.

The outlet pipe was too hot to touch in a very short time, yet the inlet pipe continued to be as cold as the water running inside it.

Indeed, a 20-horsepower electric motor is an energy source, but later tests and more sophisticated equipment showed that the power out -- in the form of steam -- was greater than the power in from the electric outlet source -- an engineering impossibility, but a fact nonetheless!

In September of 1973, Sonaqua Inc took the Schaeffer device to the famed Battelle research institute in Columbus Ohio for efficiency tests.

The test results, submitted to George W. Moffitt Jr., board chairman of Sonaqua Inc on October 4, 1973 by L. J. Flanigan of the Nuclear and Flow Section of the Battelle, listed the efficiency of the device over eight test runs to be in a range between 97.3% and 99.0%.

An interesting aside to the formal report is that much of the experimentation was said to have been "not definitive because shortcomings in the experimental apparatus introduced large uncertainties into the results".

However, it was reported by Battelle personnel, that part of that same unexplained phenomenon reported by the inventor must have developed. An engineer told Bob Price, "We had readings in excess of 100% on several occasions, and that's not possible."

"I was told that one of the readings actually indicated an efficiency of 117%", Price said, trying to subdue a grin at the thought of the confusion such a development must have caused the engineers.

The Sonaqua people, especially Price, are careful to avoid any claims for the unexplained energy at this time. "We have the greatest efficiency and potentially the lowest cost apparatus for making steam there is", Price said.

Sonaqua did manage to sell a licensee the right to produce home heaters, only to find that after two years the licensee is having the same developmental problems faced by the parent company -- the new departure is up against dogmatic slide-rule skepticism and development money is hard to find.

Aquasonics of Denver has proven that a three-bedroom home with a basement can be comfortably heated with two small 3-horsepower motors.

"They have managed to heat a home with 20% less electricity than that used by a standard immersion unit, and they have had no trouble keeping the house warm -- excessively warm", Price said.

For two winters now a model house in the chilly mountain city has had more than adequate heat from the two small motors and the Schaeffer device.

Sonaqua is applying for grants to study exactly what it is that makes the shocked water heat up. Schaeffer's sons, Kurt and Karl, have worked with Bob Price and have designed some experiments to help discover precisely what takes place within their father's mechanical device.

Whether grants for such studies are forthcoming or not, it seems silly to have the use of the device withheld. There's no doubt that it works. Time enough to figure out why after it's in production and helping to curb America's excessive energy use.

Edison's light bulbs were giving light when electric theory was in its infancy. It's not necessary to know precisely what is going on in Schaeffer's machine -- the machine works consistently and that's what is needed.

Dr. Hunter, who viewed the device in action in this reporter's presence, said that it obviously performed in a wide range of efficiencies and eventually when the device was properly developed and finely tuned, the prospects were excellent for the product.

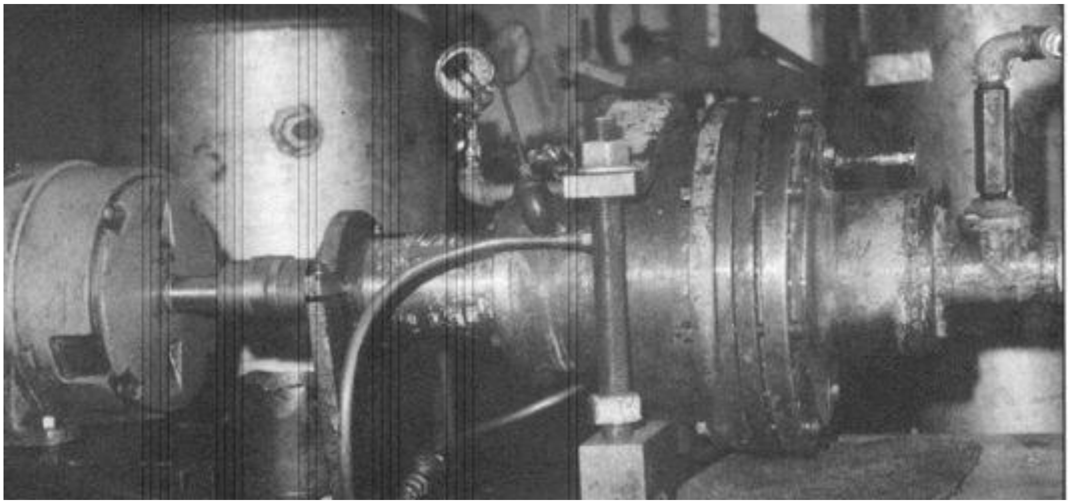
The professor of mechanical engineering did not care to comment on the "unexplained" part of the story.

Look at it this way. If the machine merely produces steam with a 98% efficiency (which Battell grants unequivocally), then it's the best thing for home use yet developed.

And there's no need for large hot water storage tanks as smaller storage units, heated more efficiently will suffice: no more need for pilot lights and natural gas.

In large apartment units there's no need for expensive boiler systems and either gas or coal fuel.

And if, when the skepticism is worn down and serious thought is given the device, the "unexplained phenomenon of the release of energy inherent in the molecules of water" is eventually proved and controlled, the world will have an alternative energy source that is sorely needed.



US Patent # 3,791,349

Steam Generator

Karl Schaeffer

February 12, 1974
US Cl. 122/11, 122/26
Intl. Cl. F22b 3/06

Abstract ~

An apparatus and method for the production of steam and pressure by the internal creation of shock waves in a distended boy of water. The created shock waves are in the nature of water hammer and it is this water hammer which is repeated and intensified to such an extent the heat and pressure developed in the water converts the water into usable steam.

Background of the Invention ~

(1) *Field of the Invention ~*

Steam generators have been in use for many years. Such generators have primarily employed burnable fuels to raise the temperature of a body of water until the water changes into steam. The uses of steam generators have been many. Many building heating systems employ steam as the heating medium. Many chemical processes employ steam to produce certain chemical reactions. Come of these use the steam as a source of heat or to contribute to the reaction while others use the steam as a catalyst to promote the desired reactions. Many physical problems are aided by the use of live steam. For example, certain types of mining operations employ steam employ steam to expedite the removal of minerals from the ground. Also, in the drilling for petroleum and gas it is often desired to use live steam to cause the start of the upward discharge of these liquids and gases once pockets of them have been reached by drilling.

It is concluded that steam generators in the past have been useful and will continue to be useful in the future -- especially if a more economical steam generator is available. The steam generator of this present invetion is such an economical device.

(2) *Description of the Prior Art* ~

The use of water hammer for the generation of steam has just not been previously done to the best of our knowledge. However, physicists and engineers have long known of the existence of water hammer. Various books and texts have discussed water hammer and its attendant characteristics. Attention is directed to:

B.S. Massey: *Mechanics of Fluids,* Van Nos Rinhold, 1971 (pages 412 to 427).

John N. Bradley: *Shock Waves in Chemistry & Physics*;1962, Wiley, American Press, Metchuen, NY (pages 172 & 173).

Horace W. King: *Handbook of Hydraulics,* (4th Ed.), Revised by E. Brater; McGraw-Hill, NY, 1954 (pages 6-21 to 6-27).

A patent search has been made on the device as disclosed herein and this search has confirmed our belief that no one heretofore has conceived of such a device.

US Patent # 3,141,296 to Jacobs, Jr, et al., describes the utilization of shock waves produced in a liquid by an electric discharge to perform useful work. The shock waves are created by discharging electricity in a liquid-filled chamber and the useful work is defined as a pump for the liquid.

US Patent # 3,398,686 to Guin describes a motor which utilizes the power of shock waves created in a liquid by the discharge of electricity across a spark gap. Thus both Jacobs, Jr and Guin are very similar to each other and it is obvious that neither one produces shock waves in a body of liquid to produce an appreciable rise in temperature of that liquid. Also, neither one has created shock waves in a body of liquid by a mechanical means corresponding to water hammer to cause the temperature of that water to rise sufficiently to convert the water to steam.

Other steam generators having water chambers appearing similar to applicant's water chambers are Loefler, US Patent # 2,316,522, Gray, US Patent # 3,508,402, Reynolds, US Patent # 3,690,302. However, no one of these patented devices uses shock waves to cause the heating of the water -- rather, each one employs a combustible gas to effect a heating of the water for its conversion to steam. And, on close analysis each chamber is entirely different from applicant's chamber and lacking in the shock wave-generating mechanisms as subsequently defined in this specification/

Summary of the Invention ~

A principal object of the present invention is to provide a novel steam generator.

An important object of this invention is to provide a novel device to produce and intensify a series of water hammers within a distended body of water to thereupon substantially raise the temperature and pressure of such water.

Still another important object of this invention is to provide a device as set forth in the preceding object in which the water hammer is caused by alternating forces -- first a centrifugal action and second a vacuum action -- causing the body of water to be first pulled in one direction and then to snap back in an opposite direction.

Another and still further important object of this invention is to provide a device of the preceding two object in which the distended body of water includes at least one closed bottom passageway in which the movement of water therein is suddenly extinguished and in which the snapping back and forth action of the water column occurs to thereby intentionally impart a water hammer to the body of water so that a portion thereof is continuously converted to live steam.

Other and further important object and advantages will become apparent from the disclosures in the following specifications and accompanying drawings.

Drawings ~

Figure 1 is an elevational view of a preferred embodiment of the steam generator of this invention with portions thereof in cross section.

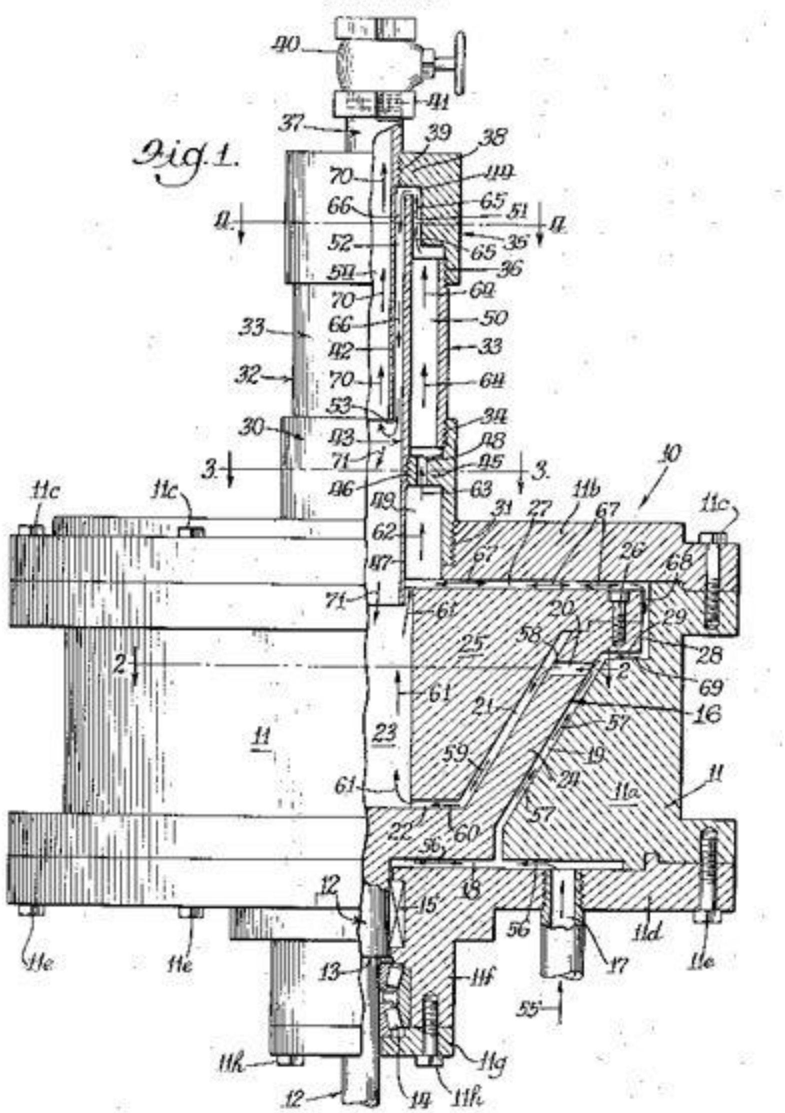


Fig. 1.

Figure 2 is a sectional view taken from the line 2-2 of Figure 1.

Fig. 2.

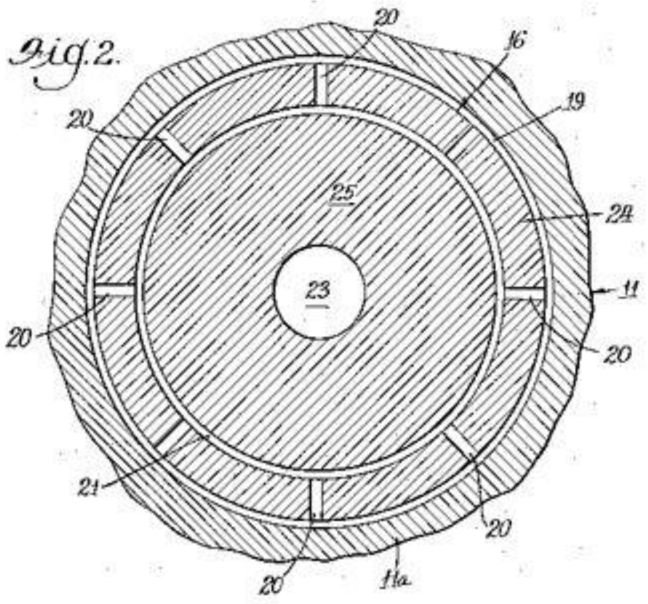


Figure 3 is a sectional view taken on the line 3-3 of Figure 1.

Fig. 3.

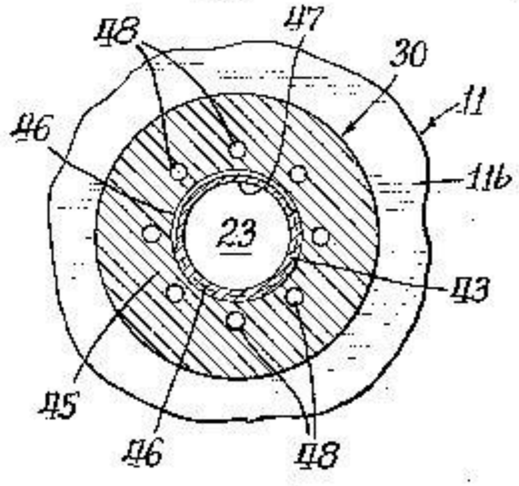


Figure 4 is a sectional view taken on line 4-4 of Figure 1.

Fig. 4.

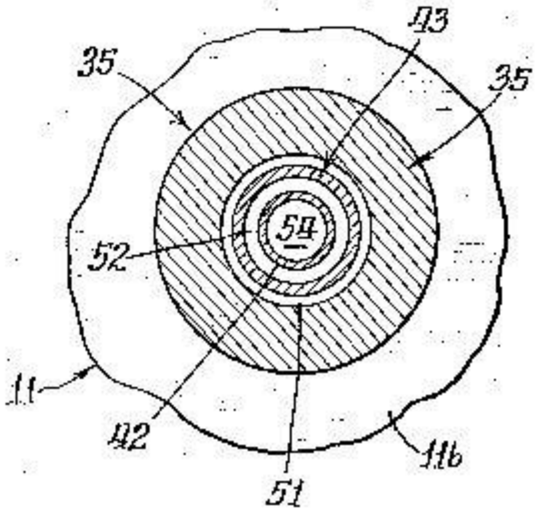


Figure 5 is an elevational view of a modified embodiment of the invention and with portions thereof in cross section.

Fig. 5.

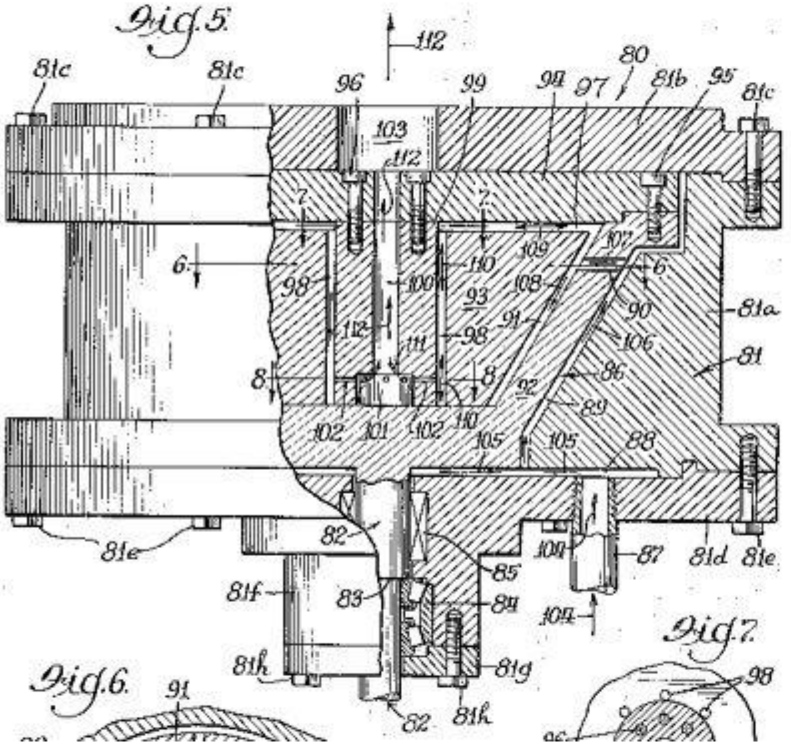


Figure 6 is a sectional view taken on the line 6-6 of Figure 5.

Fig. 6.

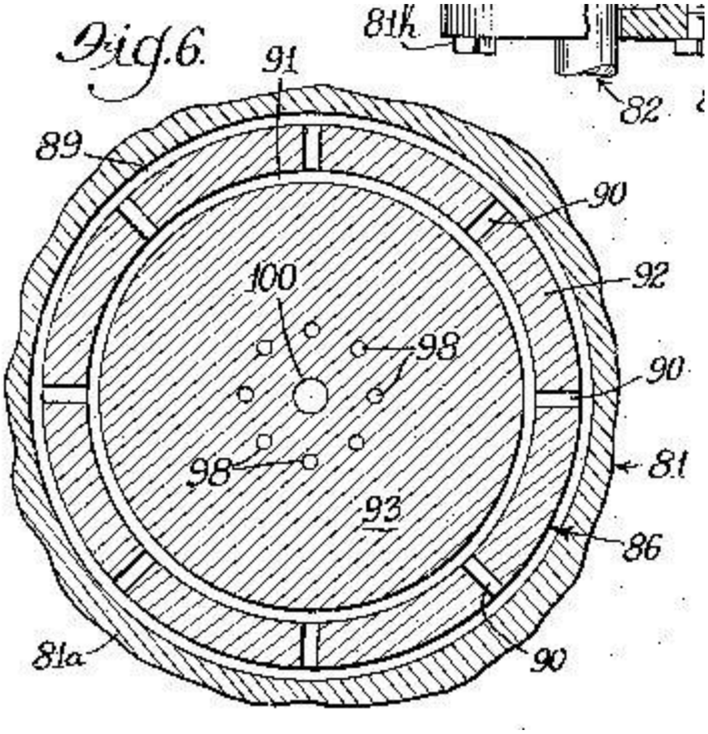


Figure 7 is a sectional view taken on the line 7-7 of Figure 5.

Fig. 7.

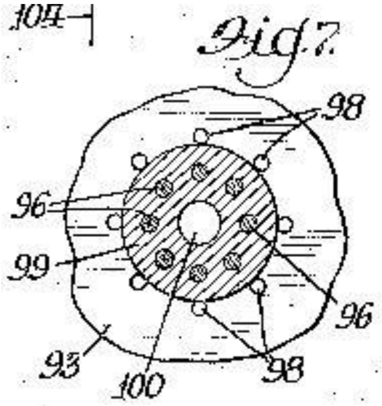
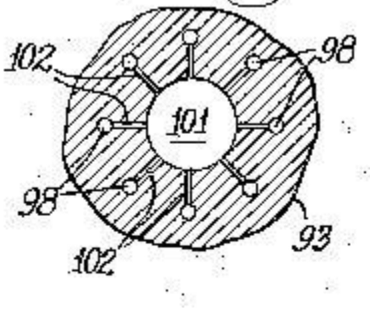


Figure 8 is a sectional view taken on the line 8-8 of Figure 5.

Fig. 8.



Explanation of the Drawings ~

The reference numeral 10 indicates generally the preferred embodiment of the steam generator of this invention. A stationary housing 11 encloses the steam generator 10, the housing comprises a main body portion 11a, an upper cap 11b fastened to the central body portion 11c, an under cap 11d fastened to the body portion 11a by a circularly arranged series of cap screws 11e, a downwardly projecting central tubular portion 11f forming a part of the under cap 11d, and a bottom cover 11e fastened by a series of circularly arranged cap screws 11h to the central tubular portion 11f.

A vertically disposed motor driven shaft 12 having an annular shoulder 13 therearound is journally carried within the central tubular portion 11f of the housing 11 by means of a roller bearing 14. The inner race of the bearing 14 is disposed between the annular shoulder 13 of the rotating shaft 12 at its top and the stationary cover 11g at its bottom. An annular seal 15 is held within the housing 12 to effect a sealing of the chamber above the seal from communication with the device below the seal.

A rotor designated generally by the numeral 16 is carried on and with the upper end of the motor driven shaft 12. The outer surface of the rotor 16 is cone shaped and is adapted to rotate within the outer housing 11. The housing and the rotor carried therewithin together define a generally distended chamber for the body of water which has its temperature and pressure materially raised by subjecting it to shock waves. A water inlet 17 is provided in the housing cap 11d and is the means for delivering water to the distended chamber within the housing 11 and in and around the rotor 16. The chamber is defined as distended because it is not just an open one-part chamber but rather is broken up into many small passageways which project in many directions. Webster's defines "distend" as "to stretch out or extend in more than one direction". The water body chamber includes a horizontally disposed ring-shaped passage 18 located between the housing under cap 11d and rotor 16. The rotor is vertically spaced above the housing on its underside to define the ring-shaped passage 18. The water inlet 17 directly communicates with the ring-shaped passageway 18 as best shown in Figure 1. An upwardly and outwardly flaring annular cone-shaped passageway 19 is located between the housing body portion 11a and the rotor 16. Again, there is a spacing between these elements to define the cone-shaped passageway 19. A plurality of radially inwardly extending arcuately spaced apart passageways 20 are adapted to pass through a portion of the rotor 16. At their outer ends these passages 20 join the cone-shaped passageway 19. An inwardly inclined conical shaped passageway 20 runs directly into the conical shaped passageway 21. This joining of the many passageways is shown in Figure 2. A radially inwardly extending ring-shaped passageway 22 is provided near the bottom of the rotor and joins the lower end of the conical shaped inner passageway 21. The inner end of the ring-shaped passageway 22 enters a vertically disposed central chamber of core 23 within the rotor 16.

The rotor 16 includes an outer cup-shaped portion 24 and a combination upper and top portion 15. This combination upper and top portion is fastened around its outer circumference by a plurality of arcuately spaced cap screws 26 to the outer body portion 24. The rotor 16 comprising comprising the two main parts is nevertheless a unitary device rotating as one mass. The two-piece construction permits the easy making of passageways 21 and 22 and before assembly permits the drilling of the plural passageways 20 near the top of the outer cup-shaped portion 24 of the rotor. Over the top of the rotating rotor there is defined a ring-shaped passageway 27 beneath the upper cap member 11b. A vertically disposed cylindrical ring-shaped passageway 27 has its top joining the top passageway 27 at the upper outside of the rotor 16. The outer periphery of a radially inwardly extending annular passageway 29 joins the lower end of the passageway 28 and at its inner periphery joins the upper end of the cone-shaped passageway 19.

A specially constructed fitting 30 has an externally threaded portion at its lower end at 31 which is threadedly engaged with internal threads within a central opening portion of the upper cap 116 of the housing 11. This fitting 30 forms the base for a superstructure 32 disposed over the basic unit contained within the housing 11. Of course, the superstructure then comes an extension of the stationary housing 11. An outer pipe 33 has its lower end threadingly engaging the upper end of the special fitting 30 at 34. A special cap fitting 35 threadingly engages the upper end of the outer pipe 33 as shown at 36. An inner concentric pipe 37 and a radially inwardly projecting annular flange 38 of the cap fitting 35 are joined to one another by a threaded engagement as shown at 39. The juncture 39 is located at an intermediate position between the top and bottom of the vertically disposed inner concentric pipe 37.

An adjustable value 40 is provided on the top of the inner pipe 37 to control the discharge of steam as the steam is generated in the device of this invention. The valve 40 is threadingly engaged at 41 to the pipe 37.

The lower end 42 of the inner pipe 37 has its outer surface milled or turned down so the pipe wall is relatively thin and thus may be assembled with the other concentric members by passing downwardly through the internal threads on the annular flange 38. An intermediate concentric pipe 43 has its upper end disposed between the cap fitting 35 and the inner pipe 37. The upper end of the intermediate pipe 43 stops short of contact with the underside of the flange 38, leaving a space 44 thereover.

An annular flange 45 is provided intermediate the top and bottom of the special fitting 30. External threads are provided on the intermediate pipe 43 near its bottom and these threads cooperatively engage with internal threads on the inner aperture of the special fitting flange 45 as shown at 46. The pipe 43 includes a lower extension 47 which has its surface milled or turned down to permit it to pass by the threads 46 on the flange 45 during assembly. This is similar to the turning down of the lower extension of the inner pipe 37.

The intermediate inwardly extending annular flange 45 of the fitting 30 is provided with a plurality of arcuately spaced apart vertically disposed holes 48. These holes constitute restricted passageways of the water in the steam generator of this invention from the lower chamber 49 defined by the fitting 30 to an upper portion or chamber 50 as defined above the annular flange 45 and between the intermediate pipe 43 and the outer pipe 33. The upper limits of the chamber 50 are defined by the inner and underside of the special cap fitting 35.

A thin annular chamber 51 is disposed between the cap 35 and the intermediate pipe 43. A second thin elongated chamber 52 is concentric with the chamber 51 and is located between the intermediate pipe 43 and the lower end 42 of the inner concentric pipe 37. By reason of the space 44 over the top of the intermediate pipe 43 the thin annular chambers 51 and 52 are joined one to the other. The elongated annular passageway 52 is provided with an annular opening 53 located at the bottom of the lower extension 42 of the inner concentric pipe 37. A central passageway 54 is provided within the inner pipe 37 and is utilized to carry generated steam to the controlling valve 40 at the top thereof.

Operation of the Device of Figure 1 ~

To commence operation, water under normal line pressures is admitted to the inlet pipe or fitting 17 so that water flows in the direction of the arrow 55 to the distended or tortuous path chamber which comprises a single body of water. The arrow 56 shows movement of water form the inlet 17 through the annular passageway 18 and to the cone-shaped passageway 19 where the water proceeds upwardly in the direction of the arrow 57. From there the water enters the several radial holes 20 and moves in the direction of the arrow 58 to the inner cones-shaped passageway 21 where the water moves downwardly in the direction of the arrow 59. The passageway 21 is joined at its bottom to the annular ring-shaped passageway 22 and as shown by the arrow 60 water moves radially inwardly to the central passage 23 within the rotor 16. The water then proceeds upwardly as upwardly as indicated by the arrow 61. Here the water enters the special fitting lower chamber 49 and as indicated by the arrow 63 moves upwardly therethrough into the restricted apertures 48 and continues upwardly through such vertically disposed apertures as indicated by the arrows 64. The upper end of the chamber 50 joins the thin annular ring shaped chamber 51 and as indicated the water moves further upwardly in the direction of the arrows 65 to the space 44 just beneath the annular flange 38 of the special cap 35. Now the water changes its direction of flow and starts moving down and through the thin annular ring-shaped chamber 52 in the direction of the arrows 66. In addition to the water moving vertically into the chamber 62 a portion thereof moves radially outward through the passageway 27 in the direction of the arrows 67. At the outer end of the ring-shaped passageway the water moves down the vertical ring-shaped annular passageway 28 in the direction of the arrow 68. Now the water travels radially inwardly through the ring-shaped horizontally disposed annular passageway 29 in the direction of the arrow 69 and hence back to the outer conical shaped passageway 19 between the rotor 16 and the main body portion 11a of the housing 11.

Water now fills the entire distended chamber which as explained contains numerous passageways forming a tortuous path and providing a cycle for the movement of water therethrough. Prior to the complete filling of the system with water, rotation of the shaft is commenced. The shaft 12 is rotated by coupling a motor thereto and the rotor 16 with its several unitary parts 24, 25, and 26 is rotated at a relatively high speed causing the water to be thrown centrifugally outwardly within the chamber through any passageway thereof having a radial disposition or a radial component. The large horizontally disposed ring-shaped annular passageway 27 is one such radial passageway. This immediately results in the water being drawn downwardly out of the closed bottom passageway comprising the chamber and passageways 49, 50, 51 and 52. The water suddenly and positively pulled downwardly from this closed bottom channel creates a vacuum in the bottom of this channel which in the device of Figure 1 is at the top of the stationary superstructure at the space 44. This newly created vacuum now sets up a pull of its own which exceed and overcomes the centrifugal forces and the body of water comes back into the bottom of the closed bottom channel with a snapping action. This sudden striking of the closed bottom extinguishes movement of the column of water and there is a substantial shock imparted to and within the body of water. This water hammer or shock brings with it a rise in pressure and temperature of the body of liquid. In Horace King's book "Handbook of Hydraulics" published by McGraw-Hill (4th Ed., pp. 6-21) there is a discussion of water hammer and its creation. The King handbook states that if a passageway in a pipe line is suddenly closed (corresponding to the closed bottom channel in the applicant's device), "a dynamic pressure, I addition to the normal static pressure, is created within the pipe. This dynamic pressure is commonly called water hammer. It is caused by the sudden transformation of kinetic energy to pressure energy".

J. N. Bradley's *Shockwaves in Chemistry & Physics* discusses "The Measurement of Thermodynamic Quantities" in Chapter V, p. 172 of that book and states:

"A shock wave in a liquid medium is characterized by a small rise in temperature and an extremely large change in pressure."

Applicant is thus intentionally creating shock waves in this distended body of water causing both temperature and pressure rises. Although the temperature rise created by each shock is small, the shocks are repeated over and over again, one upon the another, and thereby intensified causing a material rise in temperature of the entire body of water. Each shock caused by the sudden extinguishment of flow of water at the dead-ended channels creates a force of approximately 63.4 pounds per square inch of every foot of extinguished velocity. Although this degree of pressure is only held momentarily, the succeeding shock waves are cumulative and although the pressure dissipates throughout the body of water the temperature rises materially and is not so easily dissipated as the pressure. The rise in temperature and the maintenance of that temperature rise is so spectacular that steam is almost instantly created and starts up the pipe 37 through its center passage 54 in the direction of the arrows 70. Unconverted steam in the form of water in various stages of heat is pulled downwardly in the direction of the arrows 71 whereupon the cycle is repeated with the rapidly increasing shock waves causing the water to be more easily converted into steam and that steam being discharged upwardly in the direction of the arrows 70 and thence through the adjustable valve 40. Of course, water is always being admitted to the inlet 17 to keep the system full and constantly replenish that portion of the water that has been converted to steam and has been discharged through the valve 40 for some external use.

The modified or alternative construction of Figure 5 is similar to the preferred device of Figure 1, but is shown primarily to emphasize that various body chambers may be employed. As explained for the device of Figure 1 the water chamber is distended in nature -- not any particular shape -- but expressly including one or more closed bottom channels within which a vacuum may be drawn and at least one or more radial passages or passages with radial components to produce a centrifugal action. The steam generator of Figure 5 is generally designated by the numeral 80. The generator is provided with a stationary housing 81. The housing comprises a main body portion 81a, an upper cap 81b fastened to the central body portion 81a by a circularly arranged series of arcuately spaced apart cap screws 81c, an under cap 81d fastened to the body portion 81a by a circularly arranged series of arcuately spaced apart cap screws 81e, a downwardly projecting central tubular portion 81f forming a part of the under cap 81d, and a bottom cover 81g fastened by a series of circularly arranged arcuately spaced apart cap screws 81h to the central tubular portion 81f.

A vertically disposed motor driven shaft 82 having an annular shoulder 83 therearound is journally carried within the central tubular portion 81f of the housing 81 by means of a roller bearing 84. The inner race of the bearing 84is disposed in a vertical position between the annular shoulder 83 of the rotating shaft 82 at its top and the stationary cover 81g at its bottom. An annular seal 85 is held within the housing 82 and brushes against the rotating shaft 82 to effect a sealing of the chamber above the seal from communication with the device below the seal.

A rotor, conical in shape, is designated generally by the numeral 86. The rotor is carried on and with the upper end of the motor driven shaft 82. The rotor 86 is adapted to rotate within the outer housing 81. The housing and the rotor carried therewithin together define a generally distended chamber for the body of water which has its temperature and pressure materially raised by subjecting it to shock waves. A water inlet 87 is provided in the housing cap 81d and is the means for delivering water which has its temperature and pressure materially raised by subjecting it to shock waves. A water inlet 87 is provided in the housing cap 81d and is the means for delivering water to the distended chamber within the housing 81 and in and around the rotor 86. The chamber is defined as distended for the same reasons as applied to the chamber of the device in Figure 1. The water body chamber also includes a horizontally disposed ring-shaped annular passage 88. The rotor is vertically spaced above the housing on its underside to define the ring-shaped annular passage 88. The water inlet 87 directly communicates with the ring-shaped passageway 88 as best shown in Figure 5. An upwardly and outwardly flaring annular cone shaped passageway 89 is located in the space between the housing body portion 81a and the rotor 86. A plurality of radially inwardly extending arcuately spaced apart passageways 90 are adapted to pass through a portion of the rotor 86.At their outer ends these hole-like passages 90 join the cone-shaped passageway 89. An upwardly inclined conical shaped passageway 91 is concentrically disposed radially inwardly of the conical shaped passageway 89.The inner ends of each of the plurality of horizontal passageways 90 run directly into the conical passageway 91. This joining of the many passageways is shown in Figure 5 and further in the sectional view of Figure 6. The inner cone shaped passageway 91 forms one of the closed bottom passageways of this distended chamber of the device of Figure 5.

The rotor 86 includes an outer cup-shaped member 92, an intermediate member 93 generally nesting within the cup portion 92 and a circular or disc-shaped cap member 94. A plurality of arcuately spaced apart cap screws 95 define an outer ring around the cap 94 and constitute the means of joining the cap 94 to the outer portion 92 of the rotor 86. A plurality of similar arcuately spaced apart cap screws 96 define an inner ring around the cap 94 to the intermediate portion 93 of the rotor 86.these three body members with their cap screws 95 and 96 together constitute a unitary rotor which rotates within the stationary housing 81 and thereby crates the shock waves for effecting the rise in the temperature of the distended body of water to generate steam.

The rotor 86 includes an annular ring shaped passage 97 disposed between the intermediate portion 93 and the cap 94. The top of the outer annular portion of the intermediate portion 93 is milled or turned down to provide the space for the annular passageway 97. The rotor also includes a plurality of arcuately spaced apart vertically disposed closed bottom channels 98. The arrangement of these holes or channels 98 is in a circular path which is generally arranged concentric to the center of the composite rotor. The inner annular surface 99 of the top of the intermediate portion of the rotor has not been milled down and thus having its full height abuts the underside of the cap 94. Thus when the cap screws 96 are drawn up tightly the unmilled central ring portion 99 of the member 93 acts as a spacer for the remainder of the top of that member from the underside of the cap 94. This clearly defines the radial passageway 97 which joins the inner cone shaped passageway 91 with the open topped closed bottom holes 98. The rotor is further provided with a central vertically disposed passageway 100 about its vertical centerline. At the juncture of the bottom center of the intermediate member 93 of the rotor with the bottom of the cup-shaped outer member 92 of the rotor the central passageway 100 is enlarged as shown at 101. A plurality of relatively small diameter radially disposed holes or passageways 102 join each of said closed bottom channels 98 with the enlarged chamber 101 at the center of the rotor. These radial passageways 102 are disposed at a position spaced above the closed bottoms of the holes 98. It is generally through these minute relief holes 102 that generated steam is permitted access to the center of the rotor where it moves upwardly through the passage 100 and thence into an enlarged steam passageway 103 located above the channel 100. Steam may be permitted free escape from this passageway 103 or may be selectively discharged by a suitable adjustable valve means such as that shown at 40 in Figure 1.

Operation of the Device of Figure 5 ~

As for the steam generator of Figure 1 water is admitted to the system of Figure 5 by passing through the inlet 87 in the direction of the arrows 104. The water then moves in the annular ring-shaped passageway 88 in the direction of the arrows 105 to the juncture with the cone-shaped passageway 89. the water now moves upwardly in the direction of the arrows 106 to the juncture of the full annular passageway 89 with the plural radial passages 90. Water then moves inwardly in the direction of the arrows 107. As previously stated, an inner concentric cone-shaped passageway 91 joins these several radial holes 90 and thus the incoming water fills that passageway as shown by the arrows 108. As the ring-shaped bottom of the passage 91 is effectively closed the water then moves radially inwardly across the top of the outer portion of the intermediate member 93 of the rotor in the passageway 97 as shown by the arrows 110 to thus fill the entire distended chamber formed by this maze of multi-directional passageways. Most of the arrows just described for the movement of water in the various chambers and passageways are two headed indicating that water during the operation of the device moves in both directions.

Prior to the system being completely filled with water, rotational drive is imparted to the shaft 82 and thereupon its integral rotor 89 is also rotated. Rotation is at relatively high speeds. The initial response to the body of water is its centrifugal action through all radial passageways and passageways having radial components. In this device the primary centrifugal action is created in the elongated radially outwardly extending annular ring shaped horizontally disposed passageway 97. The imposition of this force in the body of water causes the columns of water in the multiple closed ended channels 98 within the rotor to be drawn upwardly out of their closed bottoms.

Almost immediately there is a multiplicity of vacuums created in each closed bottom with the result that the vacuum overcome and exceed the opposite force of centrifugal action to thereby cause the columns of water to snap back into the closed bottoms of these channels. As previously explained for the operation of the device of Figure 1 the extinguishment of the motion of the body of water by the closed bottoms of the channels imposes shock waves in the distended body of water so that there is an incremental increase in both the temperature and pressure of the body of water. The repeated and continuous rotation of the rotor causes multiple shock waves or water hammer and actually an intensification of the shocks when they are occasioned one upon the other. Thus what would have been only a small rise in temperature is now substantial. The pressures similarly rise but they quickly dissipate in the system. The water commences its conversion to steam generally in the area of the closed bottoms of the channels 98 where the greatest effect of the snap action shocks takes place. This newly created steam is permitted to escape radially inwardly through the restricted holes 102 in the direction of the arrows 111. Once in the central chambers of the rotor the steam moves vertically upward through the successive passages 101, 100 and 13 as indicated by the arrows 112.

Both the devices of Figures 1 and 2 act to generate steam. Their common attributes are their stationary housings with rotors therein which together define distended chambers with tortuous passageways and at least one closed bottom passageway and a passageway permitting centrifugal action to create forces in the body of water opposite to the vacuum created forces in the body of water opposite to the vacuum created forces in the closed bottom channels. In Figure 1 the closed bottom channel is located in the stationary housing portion of the device whereas in Figure 5 the closed bottom channels are located in the moving rotor. It is thus apparent that the steam generator of this invention may take many and varied forms without departing from the principles disclosed herein. Thus it is not my intention to limit the patent granted herein otherwise than as necessitated by the appended claims.

Claims ~

What is claimed is:

(1) A steam generator comprising a stationary housing. A rotor journally mounted within said stationary housing, said housing and rotor together defining a distended chamber, means delivering water to said distended chamber, at least one portion of said distended chamber comprising a closed end passageway and at least another portion of said distended chamber comprising another passageway capable of being subjected to centrifugal force, means rotating said rotor when the distended chamber has water therein whereby such rotation creates shock

waves in the body of water in said distended chamber by reason of centrifugal action occurring in said distended chamber by reason of centrifugal action occurring in said another passageway and a vacuum occurring in the closed end passageway and the two forces alternately conflicting and overcoming one another to produce and intensify shocks in said body of water to thereby cause a substantial rise in temperature and pressure of the body of water, thereby converting a portion of said body of water to steam, and means for removing steam created in the body of water.

(2) A steam generator as defined in claim 1 in which said rotor is generally cone shaped on its outer surface and the distended chamber comprises a series of generally narrow passageways in a multi-directional manner.

(3) A steam generator as defined in claim 1 in which said closed end passageway is disposed in the stationary housing.

(4) A steam generator as defined in claim 1 in which said closed end passageway is disposed in the rotor.

(5) A steam generator as defined in claim 1 in which said stationary housing includes a superstructure offset from said portion housing said rotor.

(6) A steam generator as defined in claim 5 in which said superstructure comprises a plurality of concentric pipe members and wherein the closed end passageway comprises thin annular ring shaped passageways at one end of said superstructure.

(7) A steam generator as defined in claim 6 in which in which said superstructure of concentric pipes includes a series of alternately large and small passageways.

(8) A steam generator as defined in claim 2 in which there is included a first thin cone shaped annular passageway disposed between the stationary housing and the rotor, a second thin cone shaped annular passageway disposed within said rotor and generally concentric to said first of said cone shaped passageways, and a plurality of arcuately spaced apart radially disposed passages in said rotor joining said first and second cone shaped passageways.

(9) A steam generator as set forth in claim 8 in which there is included a central vertically disposed passageway within said rotor and a radially disposed passageway communicating between said second cone shaped passageway and said central vertically disposed passageways within said rotor.

(10) A steam generator as set forth in claim 8 in which there is included a central vertically disposed passageway within said rotor, and said radially directed passageway communicating with at least one of said cone shaped passageways and directly communicating with said closed end passageway, and means discharging said closed end passageway said water to the central vertically disposed passageway in said rotor.

(11) A steam generator as set forth in claim 10 in which said means discharging steam comprises an auxiliary passageway from said closed end channel to said central vertically disposed passageway in said rotor.

(12) A steam generator as set forth in claim 8 in which the closed end passageway includes a plurality of generally vertically disposed closed bottom holes in said rotor and arranged in arcuately spaced apart position to define a generally circular path, said rotor having a central passageway, and series of passageways including radial passageways joining said second thin cone shaped passageway and the tops of said plurality of generally vertically disposed closed bottom holes, and restricted passageways joining said central passageway and each of said plurality of closed bottom holes intermediate their tops and bottoms whereby steam is permitted to escape radially inwardly through said restricted passageways to said central rotor passageway.

(13) A steam generator comprising a stationary housing, a cone shaped rotor journally mounted for rotation within said stationary housing, said housing and rotor together defining a distended multi-passageway chamber, means delivering water to said distended chamber, at least one passageway of said distended chamber having a closed end, and at least another passageway of said distended chamber having a radial component, means rotating said one shaped rotor when the distended chamber has water therein whereby such rotation creates water hammer shock waves in the body of water in said distended chamber by reason of the centrifugal action created in said radial component passageway and the vacuum created by the closed end passageway causing the movement of water in that passageway to be suddenly extinguished, and the alternating of the said centrifugal action and the vacuum continuing to create shocks and cause a rise in temperature and pressure of the body of water, and means for removing steam created in the body of water.

(14) A steam generator as defined in claim 13 in which said closed passageway comprises an annular ring shaped passageway in said stationary housing.

(15) A steam generator as defined in claim 13 in which said closed end passageway comprises a plurality of vertically disposed closed bottom holes in said rotor.

Comments & Notes ~

Infinite Energy (July-August 1995, p. 30)

"Other Cavitation Reports: The Schaeffer Steam Generator"

by Michael Huffman

I have two reports done by two university professors on two different versions of the Aqua machine.

As some of you may know, Carl Schaeffer patented his device in 1973. He reportedly spent about $5 million developing and marketing the device. He faced a great deal of resistance from the academic community, and was never able to commercially manufacture the device. He ended up selling the patent for the device in 1988 to the Aqua Corporation in Chicago for $1, shortly before he died. Bob Price was an engineer who had worked with Schaeffer on the device for 12 years. He has his own machine shop and was able to design, build and test his own prototypes.

He went to the Aqua Corporation and together they spent an additional $500,000 developing and attempting to market the device. Again, they faces a great deal of skepticism, and were unable to successfully market the device. Their main problem was, however, that they were asking $50 million for a technology that would become public domain in a couple of years. Grant Stouffle was the CEO of ill-fated Aqua, Inc., and in my opinion, not a very realistic businessman. Even though they got some serious multi-million dollar offers from some large capitalization, international corporations, Grant believed that the technology was worth more than that, and managed to convince the stockholders that they should hold out for more money.

When Bob Price's wife died, he left Aqua Inc to live with his family in another state. Sheldon Hughes joined the Aqua Corporation as an engineer in 1990, and helped develop the device further. He didn't have a machine shop, and the Aqua Corporation ended up spending between 10 and 50 thousand dollars per unit to have them made. Sheldon was working on a deal with the Swenson Corporation, a manufacturer of multi-effect evaporators, to make and test prototypes. That was where AI first saw the machine that I reported on in the March/April edition of Infinite Energy. The Aqua Corp ended up running out of money shortly after that, and no more prototypes were ever built. The Aqua Corp then formally folded.

The first report that I have from the Aqua Corp was titled, "Preliminary Report on Aqua Inc Rotary Impeller Water Heater". It was written by Linda McDonald, chairman of the Dept. of Physics, North Park College, IL (May 5, 1989). The report s very much like Scott Little's report on the Yusmar. The report is 9 pages long. There is an introduction which defines the variables and formulae, a description of the physical characteristics of the apparatus, a description of the testing procedure and instrumentation, a page of data collected from the 10 test runs performed in three temperature ranges, a conclusion section, and an appendix.

The machine that was tested was one of Bob Price's variations of the Schaeffer device. The test procedure used was also very similar to Scott's. It was a basic barrel calorimetry type test in which the incoming water temperature was measured against the elevated outgoing water temperature, the volume of water, the power consumption, and the time were measured. In the error analysis section, the accuracy of the measurements was calculated to be +/- 11%. No mention at all was made of the efficiency of the motor or any motor-related heat losses. The table of data reported explicitly that the efficiency of the device was between 1.09 and 1.30, depending on the output temperature of the run. The operating temperatures ranged from 97° F to157° F. The lower temperatures gave the higher efficiencies.

The other university test report is titled "Aqua Motor Tests" by the Institute for Aviation Research, Wichita State University, KS, and was written by Glen W. Zumwalt, PhD, Professor of Aerospace Engineering, dated March 8, 1990. The tests were performed on several of

Sheldon's designs. The report is 8 pages long. Much of the same format is used for the report, with the addition of two diagrams of the test bed configuration. The data collected and the formulae sued were described in even greater detail than the McDonald report. In this report, a paragraph is devoted to the observation of "blue steam" [Exactly what James Griggs sees with his machine. - Ed., Inf. En]. The testers speculated that the coloration may have been due to the boiling of the grease in the shaft seal. Samples were collected and analyzed with a gas chromatograph, but only pure water was found. They concluded that the coloration remained a mystery.

The issue of efficiency was treated in a very interesting manner, however. In this report, at the end of the data tables for each test run, there is the statement, "If the electric motor efficiency is XX.X%, shaft power supplied equals the heat produced". The efficiency numbers used varied with the different rotor designs, but some of the numbers exceeded the manufacturer's nameplate efficiency rating, which led to the recommendation by Prof. Zumwalt that a dynamometer be used in future tests to verify the data collected in the barrel calorimetry tests.

The test performed on the "Griggs gadget" by the Emprise Corp report an efficiency of 120% for hot water runs, and 140% for steam runs. This report was written by R.A. Dubose, President of the Emprise Corp on February 16, 1994. Again, this report relied on the motor manufacturer's nameplate efficiency rating in its' calculations, and recommended that a dynamometer be installed in the test bed to verify the data collected and reported.

The test procedure was the barrel calorimetry type of test that Jed Rothwell and Gene Mallove described in their reports. Sheldon also wrote a couple of reports to the Aqua Corp shareholders on the tests performed at the Swenson Corp testing facility. One report is 4 pages long, and the other is 3 pages. Sheldon measured the amount of steam collected, and found that it was far greater than his device than with an electric boiler. These reports include graphs that plot the horsepower used against the steam value output. Depending on the amount of horsepower used, the amount of steam collected was 250% to 500% more than an equivalent powered resistance coil boiler system. The minutes of the Aqua Corp stockholder meetings show that they voted to have Sheldon patent his design, but Sheldon said that they never gave him the money to do it. As a result, he never patented any of the designs that he came up with while working with the Aqua Corp.

As you can see from all these reports done by some fairly well qualified individuals, mostly in laboratory settings, these devices demonstrate overunity efficiency.

I just got a packet of information from my dad containing more information about the devices developed by Aqua Inc and Sonaqua Inc. The first report was made by Raymond E. Ross, and I believe he was a principal of Sonaqua Inc of Colorado. The report is not dated, but the note at the bottom from my father suggests that Aquasonics had purchased a license form Sonaqua Inc (the original Schaeffer corporation) to develop and market the Schaeffer device. The note further explains that Aquasonics failed to live up to the contract, went bankrupt, and lost its license. The Colorado based company was marketing the device as a home heating system, and was calling it the "Delta Tee".

Evidently, Raymond Ross installed one of these devices in his home, and took measurements of the performance. There is no description of the device, the testing protocols, or instrumentation used to make his claims. The report was simply a statement, according to my father's note, and a set of preliminary data that was recorded before sending the device to the Battelle Institute in Columbus OH for testing in their lab.

It was not a formal report. I would call it more of a testimonial that a scientific report, but it does have some very interesting things to say. The report made by the Battelle Institute was not included in the packet. It was supposedly a formal report of over-unity performance that was the result of testing done at the Battelle Institute. According to Bob Price Aquasonics supposedly paid $40,000 to Battelle Institute to perform these tests. The following is the complete report from Aquasonics, Inc.:

The Aquasonics Delta-Tee ~

In m opinion, the conventional way of estimating BTU output (GPM x delta-T) cannot be used for our unit. I think we have proved this at the Ross residence in Broomfield. By the conventional way of estimating BTU output, we are heating a 1440 sq. ft. house with a full basement, or a total of 2880 sq. ft. to 75° F. with the outside temperature of 0° F with less than 20,000 BTU/hour.

A separate test was made with immersion-type electric heaters. All engineers agree that this way of heating water is as close to 100% efficiency as you can get. Two 4.5 kilowatt immersion units were used in the same tank and through the same piping (two 4.5 kw immersion units = 30,708 BTUH). This 100% efficient water heater could not heat the house above 66° F when the outside temperature was 15° F. A fire had to be built in the fireplace to keep the house warm. The Aquasonics Delta Tee unit did a better job for 10% less cost. I think a good way to test the BTU output would be to build a 20' x 20' refrigerated cooler (like a meat cooler) and inside of this build a small house. This way we could have a controlled environment and measure the air temperature inside the house. In the past year we have tried almost every type of thermometer that is on the market and we can't believe the readings we get, nor could we get anyone else to believe them. With some of the readings we got, the unit showed as high as 700% efficiency. Several of the best engineers in the country tried to prove us wrong and couldn't. May time the water temperature at the unit would read 150° F, run through 100 ft of 3/5" baseboard radiator and return to the unit at 152° F, a gain of 2 ° F after running through 100 ft of radiator and giving off heat. This is impossible. It is also impossible to heat 2,880 sq ft of floor space with two 3-hp motors that equal 13,200 BTUH, but the Aquasonics Delta-Tee does the job and does it well.

Report made by Raymond E. Ross [Signature]

The second page of the report is a piece of paper with the hand written results of 10 test runs. The average efficiency was 96%, not taking into account the benefit of the inefficiency of motors. There was no mention of the formulae sued to come up with these numbers.

Cribbed from Bill Beaty @ www.eskimo.com:

From: mdudley@brbbs.brbbs.com (Marshall Dudley)
Subject: Another theory for Griggs device
Date: Sat, 17 Dec 1994 12:14 -0500 (EST)

In a previous post I hinted at another possibility of what may be happening in the Griggs device when I mentioned "non-linearities in the steam table" as one of several things that should be looked at. Since I did not get any bites on that, let me outline a discussion I had with a scientist from Oak Ridge National Labs about the Griggs device several months ago. This discussion is off the record, and most likely will not be collaborated, just as some of the results of their CF cell experiments are.

I had an occasion to meet with this person and begun describing the Griggs device to him. After telling him how it worked I ended it with, "and it is reported to produce more steam or hot water than then the input power should produce". His response was "that's not surprising". I was almost floored.

He then told me that is a fairly well known fact among some researchers that the published steam tables are wrong. The original team which made up the steam tables found that toward the extremes (high pressure high temperature and low pressure and temperature) there are unexplained non-linearities. Since these non-linearities could not be explained, and were shown to not obey the conservation of energy, they fudged the tables to get rid of the non-linearities. They had assumed that there must be an error in their measurements or equipment since it did not jive with theory. Since then others have found the same thing, but none of them will stick their neck out to declare that steam tables which have been in use for decades are wrong, especially since there seems to be no theory to explain these non-linearities. Anyway, he said that if you go through a cycle of vaporization at one pressure and condensation at a higher pressure and temperature, when you get back to the original temperature and pressure the "corrected" steam table does not close. That is to say, according to the measurements there is steam left over which should not be there, and by conservation of energy cannot be there. Anyway, he said that it seems that such a device such as Griggs would enhance this non-linearity effect and therefore produce more energy than is supplied. He does not have the foggiest idea where the excess energy could come from, but simply that given what he knows about the non-linearities in the (corrected) steam tables, that seems like a good place to start looking. I find the idea intriguing, but as with so many other theories, it leaves one with as many questions as it gives answers.

Karl SCHAPPELLER

Prime Mover – Glowing Magnetism

Excerpt from:

Earth Energy

by

John Bigelow

In a book titled *The Physics of the Primary State of Matter*, published in the 1930s, Karl Schappeller described his Prime Mover, a 10-inch steel sphere with quarter-inch copper tubing coils. These were filled with a material not named specifically, but which is said to have hardened under the influence of direct current and a magnetic field [electro-rheological fluid]. With such polarization, it might be guessed to act like a dielectric capacitor and as a diode.

The same material is inside the rotor. The transfer of electrons upward, and the magnetic field of the sphere combine to turn the rotor. No direct conversion of this energy to electricity is described, but the rotor could be attached to a generator...

According to Schappeller, the amount of this sustaining rotation of the device would be termed ‘glowing magnetism’ and be located at the center of the sphere. Present day terminology might be ‘plasma’.

Excerpt from:

The Physics of the Primary State of Matter

by **Cyril Davson**
1955

The New Technique ~

The important fact from the point of view of the New Technique is that the only source of primary magnetism is glowing core of hydrogen energy, or the primary magnetism as force is magnetism in the glowing state, or glowing magnetism, which is the Primary Force, or if we must use the present terms, the atomic force, the chemical composition of which is a hydrogen energy core interacting through mobility with its complementary cold oxygen energy stress field, the physics of which has already been explained.

The fulcrum or basis of the New Technique based on the physics of the Primary State is thus the production of a core of glowing magnetism, the greatest available force within the reach of man, and in the Cosmos the great creative origin-force in all Nature.

In the cosmos we learned that the essential factor to the formation of a glowing core was the establishment of a magnetic point of inequality in the otherwise latent homogenous stress field.

Obviously, we have not the same faculties as are available in the cosmos, and so the crux of the whole problem in the New Technique is this forming of a point of inequality in the ether, under such conditions that a glowing hydrogen core, or glowing magnetism, will form as a space-form impression entity and be maintained as such.

Primary magnetism, or a glowing hydrogen core of energy, is always spherical, because it forms radially concentrically on the point of inequality.

It is therefore clear that the first technical problem we have to solve is: what form of technical appliance is there which will put a spherical stress on any given point in the ether? The stress must, of course, be magnetic or electromagnetic in quality and thereby exert a suction on the ether on and to this point so that the surrounding ether will be drawn in, catalyzed, and finally radiated out as a stimulated stressfield which can be made to perform work of all kinds, just as the electric current is now used to produce mechanical power, light, heat and electrolysis for all forms of industrial purposes. There is a similar medical application to healing, radiology, diathermy and electrotherapy through ionization of the particular salts or drugs required by any given condition of the body, and multifarious other applications (See Part III).

So we now have as our guide the fact that the appliance must be capable of continually receiving and holding an electromagnetic charge, the form of which must be spherical.

The appliance nearest to this at present available is perhaps the solenoid, which is simply a coil of wire through which an electric current is passed. The electric current produces a magnetic field round the wire coil on which the ether exerts a force of attraction or a suction force, because the ether itself is latent magnetism; and we know that if through the center of this coil or solenoid we insert a bar of steel the magnetic stress from the solenoid will be induced into the steel bar, and the bar will be said the be magnetized.

Suppose, therefore, we produce a magnetic field of spherical form, that is, wind our wire in the form of a sphere, and provide it with a suitable support and covering. This would hardly satisfy our requirements,

(1) because an electric current will always have to be supplied from an exterior source;

(2) because this type or quality of magnetic field would only magnetize a piece of iron or steel placed in the center of the spherical solenoid and the Ether would not react to this type of gauss field;

(3) the current in the solenoid is held adhesively to the cohesive force of the wire and cannot therefore put a stress on a point in the geometric center of the spherical solenoid, as its complementary stressfield in this case is the cohesive force of the wire itself and it has thus no complementary stressfield or contra-pole external to its Space-form.

It will thus be perfectly clear that a field produced as at present through the medium of passing a current through a copper wire would not fulfill the purpose, and that we require some form of field which will spring out on to its geometrical center and thus draw with it the surrounding Ether, until finally the pressure on the point from the ether compression on the constantly inrushing ether brings it to the glowing state and a physical point of origin is formed on the geometrical center of the Sphere, or, as Schappeller terms this apparatus, the Stator.

The Electret ~

We have seen that the numerous so-called "effects" in Physics owe their origin to the crossing of two stressfields, e.g., Nernst, Ettinghaus, Hall, Leduc, Peltier and Thompson effects; these may be said to ring the charges between, say, heat and electricity, electricity and magnetism, and so forth; others have been cited, producing different effects, but all are caused by the same principle or law -- *that energy can neither be produced nor transformed without the crossing of two stressfields*.

An experimental physicist once declared that he had nothing to do with the "crossing of stressfields". Neither has the housewife anything to do with the "boiling of water"; she merely places the kettle on the fire, then Nature crosses the stressfields, i.e., the heat stress crosses the cohesive force or stressfield of the water. This is the case in all the effects cited above; but the components, and thus the products, differ in each case.

The deeper the study of present Physics, the more this law is firmly established.

We are now about to examine another effect, which plays an important part in the New Technique, viz., the Permanent Electret, named by the Physico-Mathematical Society of Japan in 1920.

Prof. Mototaro Eguchi (Prof. Of Physics, naval College, Tokyo) produced his own special electret, which constitutes really *the permanent magnet of the electrostatic sphere*.

He used as the dielectric, carnauba wax and resin with or without a percentage of beeswax and kept it in a strong electric field whilst slowly baking until solidification set in. Once again we have the crossing of the two stressfields, the cohesive force of the dielectric, but this time with an electric field, aided by heat stress.

The heat stress was in a plastic condition as a slowly solidifying dielectric, and the resulting effect was the permanent electrisation of the dielectric, effecting a kind of dielectric polarization.

The nature of the electric charge produced in the dielectric is a permanent internal electrisation entirely different from the superficial electrification.

For example, the electrisation cannot be destroyed by different treatment applied to the surface, e.g., a Bunsen flame, x-ray exposure washing with solvents, planning with a knife, or by applying electric force in any sense.

Electrisation, as opposed to mere electrification, is really therefore the electrification of the whole bound stressfield of the dielectric in question.

Heaviside coined this new term "electrisation" to signify an internal electrical change of a material, which is quite different from superficial electrification.

The PP [Primary Physics] explanation of this phenomenon is that the electric fielding H and Of energy, the stressfield of the dielectric, that is, its cohesive force or energy structure, is likewise H and Of energy, and the crossing of the two stressfields brings about permanent and complete electrification of the whole mass under treatment.

It is what might be termed "occlusion", not as with gases and porous material, but "energy occlusion" made possible only by the plastic state in a slowly solidifying condition.

Eguchi declares that such an electret shows so great an intensity of electrisation that the electric force exerted in front of the surface of the electret may attain the greatest sustainable value in the atmosphere -- the permanency being also so good that no sensible decay was detected for three or four years after its preparation.

The maximum attainable surface densities by mechanical friction are:

Rubbed on Wool ~ Rubbed on Silk ~
Max. surface density Max. surface density

Sealing wax 5.70 ESU 5.40 ESU
Shellac 5.57   --   5.12
Sulfur 5.48   --   5.30
Ebonite 4.82   --   4.43
Amber 4.18   --   4.11
Glass 2.65   --   2.90

Whereas the Permanent Electret has densities of the order of 6 to 6.2 ESU and in air in front of the surface, 7 to 7.8

The actual surface density (d) of the free charge of an electret may be calculated from observed numbers as follows:

C = Capacity of the condenser system,
V = Potential read on electrometer
R = effective radius of surface induction plate, i.e., radius of plate plus ½ of air gap;

$D = CV/ 3.14 r^2$

For full details of the Eguchi Electret see, *Phil. Mag*., 1925, 1, Vol. 49)

Enough has been said to show that the electret is a fact established by actual experimentation, although here we are not concerned with the Eguchi electret, but merely with the principle involved and its significance, viz. the production of a *permanent magnet in the electrostatic sphere*.

This principle forms the basis or nucleus for our spherical field. Schappeller has not used either Eguchi’s or any other form of known electret, and the purpose of citing Eguchi’s experiments is merely to establish beyond all doubt that this principle is a practical and proven fact. The composition and preparation of Schappeller’s electret or what he calls his "sublimate", requires a special plant and involves a continuous process of perhaps six weeks’ duration. Suffice it to say that the principle in the design of this new plant is "transpiration" or drawing energy from the ground by producing a stressfield above the ground and then binding it as an energy sublimate to a suitable "electret material" to form the permanent magnet for our new form of field.

This plant, although worked out in detail, is entirely new and has no parallel in present Science; it is as important in the New technique as the cyclotron, or equivalent apparatus is in the attempt to obtain atomic force by the "splitting up" instead of the building up, of the atom from atomic potential in the free, unbound state, but with this difference, that once it has performed its part of producing the sublimate, it will never be required again, because the products can then be reproduced anywhere and everywhere as desired.

Magnetism ~

We have already dealt with the origin of magnetism in the latent form, then polarized as vacuum or atomic force in the cosmos, and finally functioning as a sun or other variant.

We have also examined the method by which magnetism is produced and utilized in electric generators of the present day, that is the solenoid and its core; the core is then said to be polarized, and each unit of such an apparatus is termed an electromagnet. If we place a small piece of steel in the neighborhood of the poles of such a magnet, when the solenoid is carrying the current, the steel will be attracted because the field around the end of the pole will be induced into the cohesive force of the steel and it will finally be held against the face of the core or magnet.

Or we may consider a bar magnet which as only residual magnetism, the shape of the field being so well known that it need not be shown here. The bar is then said to be magnetized; the magnetism in the bar is polarized magnetism, the one pole, as we have seen previously, is hydrogen and the other oxygen energy; the neutral center is carbon energy, and the polarizer is carbon energy in the steel.

Now there is a law in this kind of magnetism that *"magnetic lines of force are always closed"*.

This means that each line of force has N and S, or H and O energy, and that the pull exerted is through a form of restricted mobile interchange; in other words, the field itself as such is neutral. But place a piece of steel in the field and the magnetism or static (mobile) interchange will cease and the N and S, or H and O energy, the two components of all magnetism, will once again be separated out as a polarization.

The shape of the field shows that due to compression in the metal it exerts a pressure outwards and also an attraction or pressure inwards, but only as a static field, not in the free form with true mobility.

Suppose we could bring this magnetic field to the "glowing state"; we should then have mobility, breathing, transpiration, the Primary Force. But this is not possible. We require for this an entirely new form, and an entirely new condition of magnetism, and obviously therefore a new form of magnet.

It will be clear at once that steel will not fulfill the required conditions for our new magnet.

We can even venture on a further assertion and say that no substance exists which will satisfy the required conditions for the new form of magnet or magnetic field which is an essential of the New Technique, the purpose of which is to produce the Primary Force.

Now there is polar and impolar magnetism, and we appear to require a modification, or perhaps more accurately expressed, a combination of the two.

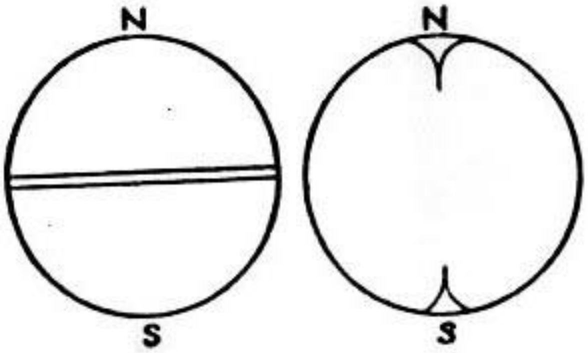
The three essentials to any magnet are two poles and a neutral. We require a uniform, coherent and concentrated magnetism and we refer now to the magnetism itself and not to the field producing it. This is the reason that no substance of any form could fulfill these conditions, which means that our magnet must therefore be throughout of magnetism; the two poles and the neutral must be centralized, united, in the form of the basic sign of all life force, the "trinity in unity".

But to accomplish this artificially, that is, through apparatus, the form of apparatus must be polar and *the electric current must be polarized*. The electric current is self-produced in the Stator without the aid of any external generator, and is only required at all for stimulating a specially designed Rotor, not for driving it, and even then only when the Stator is required for the purpose of generating mechanical power in combination with the Rotor.

The figures show the new form of magnetic field.

Figure 12: External View of Stator

Figure 13: Internal Section of Stator



Both are, of course, purely diagrammatic and only show the principle. Drawings are available at the end of this Part II, i.e.:

(1) A Schematic diagram showing the complete circuit.
(2) A Scale sectional drawing through the whole Stator
(3) A Force diagram.

There is no such thing as magnetism without the characteristic N, S and neutral, and here they meet... the trinity in unity

So the Stator is a sphere formed in two parts -- a top and bottom half or a north and south pole, both of which project into the interior of a free, hollow, central space; the diagrams represent the central hollow space of the Stator only, and not the outer covering.

The whole of the space in **Figure 13** is filled with glowing magnetism when the Stator is in operation -- the glowing magnetism being simply the induced, highly compressed energy-material, exactly as is the case with a sun or other newly formed variant.

We know from the PP that the origin of all heavenly bodies must be the Ether, being the one and only material available out of which cosmic bodies can be formed. The ether does not form a cosmic body; the cosmic body is formed out of the ether, technically perhaps a distinction without a difference, but basically one of great importance, because we are dealing here not with the dead or rather devitalized force of the electric current, but with the great biomagnetic static Primary Force.

It is the conscious sense energy in the Ether which causes cosmic bodies to form and gives each of them their characteristic destiny to perform.

It was explained in the earlier part of this book that the Ether is latent conscious energy; the core of a sun which is out of the Ether (being merely polarized highly compressed hydrogen component, but complete with its complementary oxygen stressfield) must also be "conscious" -- i.e., a living entity but not yet organic.

There is only one ether material; it must therefore be the same ether which is finally formed to the glowing state as glowing magnetism; only the method by which this is brought about artificially differs.

The northern half of the spherical glowing magnetism is stimulated as one pole and the southern half likewise as the other pole, therefore the diametric central surface is neutral. This trinity in unity can only exist in the pure energy state.

Three candle flames can be merged into one, but the products of combustion would be externally ejected; only their energies remain within, separate, yet united. It may be said that ten candle flames can thus be merged into one, so why call it a "trinity"?

Exactly so, but this is merely an additive process, not a basic law; the separate candle flames are in no way essential components of the whole. A single candle flame was just as complete, singly. Whereas the N and S poles and the neutral constitute the three basic components of magnetism, without which no polarized magnetism can exist.

It may be asked, then, where is the neutral in thelatent magnetism of the ether? It has, however, previously been explained that the N and S poles are the H and Of components and that the neutral is the carbon before polarization and this is the unity in the trinity.

Exactly the same exists here from this artificial polarization, the carbon neutral being, however, merely in this case a Euclidian diametric surface as homogeneity exists throughout.

It is obvious that innumerable questions arise, which require an answer, but let us clear them up one by one without haste and thus without confusion.

The study of "origin" requires not only immense patience and a restful mind cleared of prejudice, but also great tolerance, before it can be intelligently assimilated!

Figure 14:

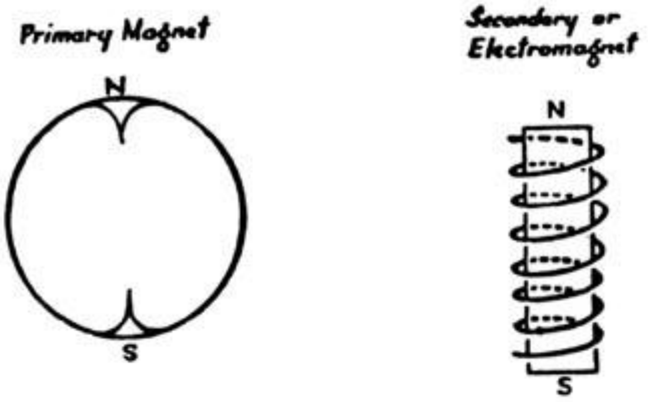


Fig. 14

Poles pointing inwards.
Windings internal.
Field internal.

Poles outwards.
Windings external.
Field external.

Primary Magnet (Poles pointing inwards. Windings internal. Field internal)
Secondary or Electromagnet (Poles outward. Windings external. Field external)

The bare statement has been made that the glowing magnetism forms in the central hollow space of the Stator, which merely explains what this central space is for, and that in being the seat of the glowing magnetism it is the purpose for which the whole Stator is designed.

The purpose for which a gun is designed, complex mechanism as it is, is nevertheless merely to fire a shell; and the purpose for which this new apparatus, the Stator, is designed is solely for the production and maintenance of a glowing magnetic core, which we now see is formed and maintained in this central hollow space.

The questions arise, how and when is the glowing magnetism formed and maintained? We now know where this takes place.

As we already know, the first essential to its formation is *to produce a point of inequality in the homogenous ether, in the geometric center of the hollow space, in order that a physical center may be formed.*

But we have not the facilities of the Cosmos, and so we can only accomplish this by setting up a magnetic field which will concentrate a pressure on the center of the hollow space; but this must not, as we have seen, be a gauss field.

The coils instead of being wires must be tubes, or if we prefer the term, tubular wires, as they are of very small diameter -- perhaps of the order of ¼ inch.

Of what substance should these coils of tubular wire or tubes be made?

In this form of electromagnetism it may be said that a conductor is an insulator and that a dielectric field holds a charge, and in one sense for static electricity it is thus, as it were, a static conductor. So our wires or tubes would be made of copper...

The drawings for the Rotor have also been worked out and the author is able to state that no further mechanical or electrical difficulty presented itself in the design of either of these two entirely separate units, which together constitute the complete Prime Mover for the production of mechanical power in the New Technique. Furthermore, the Stator, when suitably designed, can be used for the production of light and heat, of course without a Rotor (which later would obviously only be required when the purpose was the production of power), and likewise for many other purposes including radiology in the treatment of diseases, etc., etc.

But hollow copper wires or tubes alone will not enable a suitable magnetic field to be produced. The purpose of hollow tubes is to fill them with a suitably chosen and suitably prepared combination of substances, the actual composition and preparation of which is Schappeller’s secret. It is the equivalent of Eguchi’s Electret, but whereas Eguchi’s Electret was in the nature merely of an experiment in Physics to establish a phenomenon or "effect", Schappeller’s sublimate is the outcome of experiment guided by immense original research relevant to the various specific purposes for which this sublimate is to be produced.

The new plant for the production of his sublimate is entirely of his own design, based on a deep knowledge of the application of the laws of the Primary Physics, but presents no constructive or mechanical difficulties, and brings the production of the sublimate to a fine art. The general principles of the design of this plant and apparatus are known to the author, but it would not be legitimate for him to reveal them here, and it is furthermore unnecessary at this juncture.

That a sublimate can be produced is a proven fact from the Eguchi experiments.

Quality of Energy

Now before we leave the subject of the sublimate an important question arises: why will not any sublimate serve the purpose? This, in the New Technique opens up a large new field as yet entirely hidden from Science -- "quality of energy".

Some scientists are trying to being to think in terms of quality of energy, but for them at present no such thing as quality of energy exists.

As was pointed out in an earlier Chapter, the transformation of the sun’s electromagnetic radiation into light and heat on this earth does not mean that light and heat are different qualities of energy. How could they be, since they are from the same source. They are merely different conditions of electromagnetic radiation, the quality of which was characterized by the sun.

We can have different qualities of coal gas, because it is merely a mechanical mixture suitable adjusted for various purposes -- light or heat; but there is no such thing as different qualities of steam -- saturated and superheated steam are different conditions, not different qualities, as both owe their origin to water.

In the case of the electric current or a magnetic field derived fro it there is neither a change in quality nor of condition, only of form, e.g., DC or AC current and various forms of fields.

To produce magnetic fields of different qualities we require a sublimate and the quality is, therefore, characterized by its specific composition; herein lies the immense importance of the sublimate, and that is why Schappeller has reduced this portion of the work to a highly developed art. In view of the evidence given of the Electret, there appears to be little reason to doubt that he can produce this in special forms to suit the innumerable conditions demanded in he application of his New Technique.

The quality of energy required for mechanical power is obviously different from that required for specific purposes in radiology, although the radiation even from a power Stator would be generally beneficial to the human body, as both the Stator’s energy and that of the human body are biomagnetic.

We are, however, at present simply concerned with the design of a Stator for the production of mechanical power. We will now assume that the correct composition of sublimate has been prepared; it is then forced into the two cols of tubing (that is, the tubing which is to constitute the N and S poles, or two halves of the Sphere or Stator) until the tubes are completely filled throughout.

These tubes are now embedded in a suitable material of ceramic composition which, when it cools and solidifies, holds the two coils firmly in position. This ceramic material performs various functions; it holds the tubes in position, protects them, refines the ether radiation or induction into the center, and its inner periphery or surface presents a heat-resisting face to the glowing magnetism. It is also electrically an insulator.

The Charging of the Sublimate

The sublimate must be charged with electric current, after which, provided no power is taken from it, it will retain its charge as we saw in the case of the Electret; the Sublimate in this case is an energy sublimate (produced by the new plant referred to above), but this sublimate is bound to a composition of substances in the solid form with which the tubular coils are tightly filled.

The charging plant required is merely that necessary to give the required number of amperes, the plant being composed of the requisite generators and units, according to whether the grid current is available or an entirely different supply is required, or both as a "standby". Such plants will, of course, supply direct current.

The Stator

A ceramic lining or casing is fixed on the inside of a steel casing, the whole being on two journals supported on trunnions.

A lever with handle is connected to one side of the trunnion outside the journal, by means of which the Stator’s sphere can be tilted from the position of N-S vertical to the limiting angle required for the directional magnetic concentration of the Rotor, as we shall see later

The Circuit

Starting from the top half of the Stator, the coil of tube containing the sublimate is fixed to the North Pole, finally emerging through the hollow axle on which the Sphere of the Stator is supported, the bottom half of the Sphere being similarly provided with a coil of tube attached to the South pole and emerging on the other side through the hollow axle.

Wires (ordinary copper conducting wires) are connected to the two ends of the nests of tubes, after which they emerge through the hollow axle and are brought down to two terminals conveniently situated. These wires complete the circuit through the Rotor, which is mechanically an entirely separate unit, standing on its own base and at a specific calculated distance from the Stator; the Rotor is fixed to the shaft to be driven.

The central terminal is for the "earthing connection" through a battery (needless to say, of special design and having no relation to any form of battery at present known to the SP [Secondary Physics]), and the Sphere is earthed through the battery -- the whole of this connection from the center terminal to the "earthing disc" itself being a tube filled with sublimate exactly similar to the tubes forming the Stator field.

The disc or earthing plate is also of special design, according to the purpose to be served.

The battery is not essential where the Stator is merely for the production of power, as it is really a refining apparatus -- that is, for refining or qualifying the energy for each specific purpose to be served.

A study of the **Schematic Diagram** and **Scale Drawing** of the Stator should now make this clear.

The Rotor

This is really a steel wheel of special design fixed actually on the shaft to be driven...

[The construction of the Rotor] consists of a steel wheel of special design with short spokes, and, finally, a periphery or rim in which in which there are magnets -- always an odd number, five or seven and so forth, to avoid the possibility of a dead center.

This has been worked out in detail just like the Stator, but the author regrets that he has no drawing of the Rotor available at present.

The body, spokes and part of the periphery, including of course the magnets, which later are also hollow, are entirely filled with sublimate and energized through the electric current, as shown in the **Schematic Diagram**. The moment the Stator is switched on.

Switching On

What actually does "switching on" mean?

It means "earthing" the Stator. In the "off" position the earthing connection D_1 is broken, the Stator or Sphere of the Stator being exactly n the N-S vertical. So switching on means pulling the lever provided on the Stator spindle and thereby taking the Sphere of the Stator off the neutral stud; the Sphere is then earthed through the connections shown and aired through the N pole at the top, which may even accumulate outside the Sphere in a cross filled with electret or sublimate material, or in a Sphere, in place of an ordinary screwed plug (See drawing of Stator).

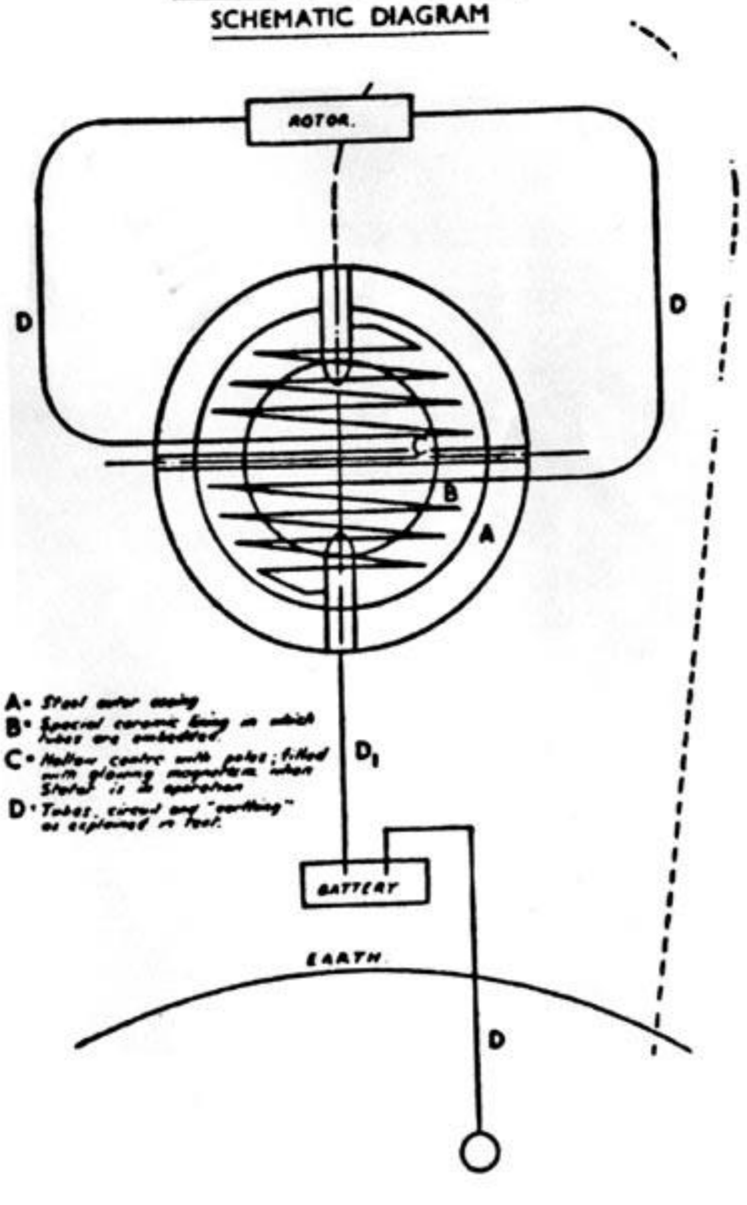
The complete theoretical energy cycle is shown in the **Schematic Diagram**. The dotted line represents the return to the earth, really a theoretical consideration.

The position of the Rotor relatively to the Stator is the position of the reader when studying the drawing. If the reader pulled the lever towards him the N pole would finally point exactly to his eyes. Imagine that his eyes are a magnet just appearing over the top of the Rotor periphery. The Stator in this position will be exerting its maximum force on the Rotor, because half the core is concentrated on the Rotor.

The Rotor will be set with its axis, that is, the axis of the shaft to be driven, parallel to the axis of the Stator shaft through the trunnion, and at any convenient distance within the Stator’s amplitude’ Schappeller declares that a suitable distance between the shaft of the Stator and that of the Rotor is seven times the outside diameter of the Stator (7d).

SCHAPPELLER PRIME MOVER

SCHEMATIC DIAGRAM



A = Steel outer casing

B = Special ceramic lining in which tubes are embedded.

C = Hollow centre with poles; filled with glowing magnetism when Stator is in operation

D = Tubes, circuit and "earthing" as explained in text.

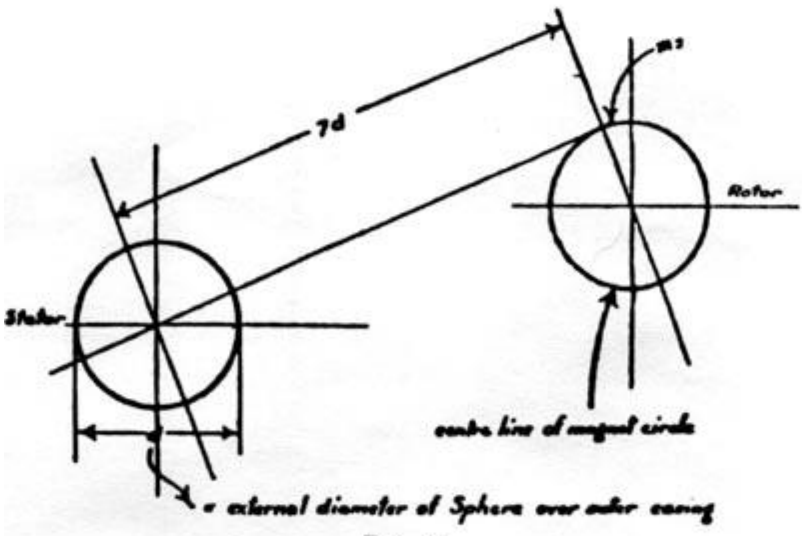

7d
Rotor
Stator
centre line of magnet circle
= external diameter of Sphere over outer casing

FIG. 15

Force Exerted by Stator on Rotor

Referring now to the **Force Diagram**, the dot and dash line XX represents the center line (in a horizontal plane) of the Sphere of the Stator through the journals and trunnion. The line (dot and dash) YY is the center line through the Stator Sphere and the center line of the peripheral circle of magnets, tangential to the radius of the Rotor at this circle.

The distance between center of Sphere and center of magnet appearing on periphery will bar a definite proportion to the angle at which the lever is placed with relationship to the YY axis.

Line A_2B_2 represents pull for lever at 10 degrees
Line A_1B_1 represents pull for lever at 30 degrees
Line AB represents pull for lever for maximum position

The above, of course, are the rectangular projections of the N pole, or a graphic representation of the useful component of force directionally available for exerting a pull on the Rotor.

The Z line is the position of the lever for maximum force.

The Rotor for the first demonstration has been designed for 15 HP only, but with the present Stator dimensions, so that enormous surplus power is available.

There will be a demagnetizing or "braking" effect on that portion of the pole not in mobile exchange with the Rotor, which at AB max. will be zero, at A_1B_1 (corresponding to a lever position in the diagram of 30 degrees) is represented by the smaller area and sloping section lines, and at A_2B_2 (for lever at 10 degrees) is represented by the larger area shown by vertical section lines. The value of these two braking effects is represented by the projection of B_1A_1 and B_2A_2 respectively, to the limiting lines A_0.

This theoretical diagram would be modified when set out for any actual Prime Mover:

(a) by the relative positions of the Stator and Rotor;
(b) by the diameter of the Rotor magnet, represented here as a point.

Let us now obtain through calculation some impression of the maximum directional force exerted by the Stator. We must remember that this is not "steel magnetism", but magnetism from a glowing core in the primary state, for which the laws of magnetism will be modified.

Coulomb's law $F = k\ (m_1 m_2/r^2)$ is not a convenient form to make the first calculation; we will therefore use the form $F = B^2A/8$ pi.

Now, if we are, with this form of primary magnetism, within the amplitude at 7d, it is legitimate to make a preliminary calculation based on this formula, if only to demonstrate the principle on which the force is exerted.

Remember, in this connection, that here it is the electricity that is stationary and magnetism that is radiated, as we shall see shortly when we examine the functioning of the whole Stator and Rotor.

The next consideration is the introduction of the Schappeller constant.

He derives this on the principle that water is to air as 1000:1 (as weight or density), and that air is to atmosphere (as stressfield) as at lest the same, 1000:1. Therefore the expansive power of the ether is at least 1000 times that of air and likewise of a present gauss field, whose expansive power as a field is negligible, relatively. In other words, the capacity of the ether for stimulation as a stressfield, for all practical purposes, is infinite, and the force inducing ether stimulation has its seat or origin in the magnetic-heat potential, e.g., the sun's magnetic-heat potential and its infinite stressfield.

So Schappeller takes as his constant that this primary magnetism is 1000 times more powerful than a magnetic field of present magnetism -- a gauss field -- which, when the full significance of a primary stressfield and its origin-force has been assimilated, may be regarded as quite a moderate figure.

It may be said that the field from the earth's core, which is, of course, also glowing magnetism, is only 981 -- yes, but I we take the present estimate of the core at 2000 miles radius, this flux of 981 is for a distance of 2000 miles.

Calculations on the Stator

Given a Stator Sphere of 15 cm diameter, what HP is available?

Take B for steel at a flux density of 15,000 gauss (Maxwells per cm2).
A = surface area of Sphere = say, 600 cm^2. Then:

$F = B^2A/8$ pi = 15000^2 x 600/8 pi = 225 x 10^6 dynes x 600 cm^2/25 x 981 x 1000 = 5400 kilos pull exerted just outside the surface of the Sphere.

But we must now introduce Schappeller's constant 1000. The author halves this again and calls it 500 -- a very low figure.

Therefore, Pull = 2,700,000 kilos, but only half of the Sphere is directly or directionally active. Therefore, Pull = 1,300,000 kilos, says, 50% efficiency between field of Stator and field of Rotor -- loss due to slip, not heat (See Chap. XXIV, p. 172, para. 2). Thus, Pull = 675,000 kilos

Take this as operating at 1 meter/second, and we have 67500/75 = 9000 HP, which is the same figure as that which we obtained from the Mathias value of lightning-material (See Chapter on Lightning).

Now, Physics tells us that the earth's field varies as the square of the distance from the center of the earth, but that the earth's core probably has a radius of 2000 miles. Therefore the crust is 2000 miles thick.

The PP establishes the earth's core as glowing magnetism; therefore this 981 is at 2000 miles.

But 77 miles is about the 26th part of 2000 miles, and the square of 26 is approximately:

680 x 981 = 675,000 approx.

Therefore, on this calculation the earth's field would have an equivalent or exert an equivalent pull to that exerted by our Stator at 77 miles from its core periphery.

If we make the calculation from the geometric center of the earth on a radius of 4000 miles, instead of 77 miles we should have, say, 150 as the equivalent distance for the earth's core to exert 675,000 dynes per square cm., which, as the core itself is 2000 miles radius, is reductio ad absurdum. This shows that we are well within the estimate for the force exerted by primary magnetism from a glowing core.

The earth's field is, of course, vastly greater than that of our Stator, so much greater that on this calculation it has a magnetic field at 77 miles from its core periphery equivalent to the field produced by our little Sphere at a distance of, say, one meter from the Stator core.

The actual pull exerted on a magnet on the Rotor periphery depends on the intensity of stimulation given to the Rotor magnets, and may, for the examination of the principles, be represented by

$F = k (m_1m_2 / r^2)$

Where m_1 is the Stator field and m2 the field of any given Rotor magnet.

As regards the actual power transferred to the Rotor, we have three adjustments available:

(1) The strength of the Stator field, which must have a minimum strength sufficient to bring the Ether concentration to the glowing state.

(2) The resulting pull exerted on the Rotor, according to the position of the lever as shown in the Force Diagram.

(3) The stimulation given to the Rotor magnets through the electric current generated in the Stator. This will be direct current, the strength of which can, of course, be entirely controlled through the present known means.

It will be obvious that more data is required to make the actual calculation, e.g., a "constant of stimulation" will have to be introduced depending on the composition of the secret sublimates, and there are other considerations.

But let us now again make a calculation of the available HP from the Stator, but on quite a different basis. We mentioned in one of the earlier chapters that this might bear some relationship to Electrochemical Equivalents.

Now with electrolytic action:

1 amp deposits 0.329 mgm of copper per second
3 amps deposit 1.00 mg copper/sec.
Now each 8.9 gm copper occupies 1 cm^3
But 1 liter -- 1 dcm^3 = 1000 cm^3
There are thus, say, 9000 gm Cu in 1 liter. So in a1 liter Stator we have 9000 gm Cu or 3 x 1000 x 9000 = 27 x 10^6 amps.

Assume 1 volt and 27 x 10^6 / 746 = 36000 HP

But maximum available at 50% for half the Sphere is 9000 HP, as was obtained in the last case by the Mathias figure (See Chapter on Lightning). This must be regarded as taking place within a second, because the deposition figure is per second per ampere; this energy is, however, instantly available.

It should nevertheless be realized that this is an energy-capacity measurement, whereas the resulting stressfield is per unit surface, a surface measurement. The capacity measurement is "indication" and thus we cannot multiply by the Schappeller factor here.

Now, it may be said that 1volt would not bring the Ether to a glowing state, which is perfectly true, although this will be made clearer shortly.

In the energy form or state we may assume a high "transference or conversion efficiency". The commercial efficiency is, of course, about 100%, because the fuel costs nothing and is inexhaustible.

The earth, a has been previously explained, is the storehouse of energy, which energy is available to replenish continuously the Stator Field as and when the Rotor draws energy from the Stator through the medium of the energy cycle.

Electropy then ensues promoting continuous induction of the Ether towards the center, just as it takes place in the sun through the induction of its complementary stressfield; but here, through the pressure exerted on the hollow center of the Stator due to the intensity of the Electret or sublimate field.

It was explained in the Chapter on the Electric Current that amps are merely densified volts, and this must be so because an inspection of the basic formula or Ohm’s law sows that power is obtainable from any given electric current in direct proportion to the product of volts and amps, volts representing the stress or energy potential, and amps per unit of time being the quantity -- the actual unit being the Coulomb.

The best illustration of this in the electrotechnique of the present day is perhaps the transformer, which actually converts volts into amps, or vice versa. It follows that what we are doing here is merely to convert volts into amps.

The volts in the sublimate through electrization constitute the static electric field, which field is constantly concentrating its energy onto the center point of the Sphere and densifiying, or sublimating, because amps are really a sublimation out of an electric stressfield produced artificially by compression of the cohesive force in the space-form of a wire.

In the present electrotechnique volts are densified to amps through compression in a wire, the denser amps requiring a larger section for their accommodation, that is, the sublimate, being energy-material, requires more space than the stressfield from which it originated, hence the larger section required in the secondary winding of a transformer in "stepping down".

In the New Technique all this takes place in the free state, through compression on a center, till densification and ignition and we then really have amps as the glowing core surrounded by its complementary volt-stressfield which together, in this form, constitute the true atomic or Vacuum Force.

But we saw in our previous calculations that the Stator had a calculated capacity of 36,000 HP or an effective maximum capacity of 9000 HP.

Let us now work backwards; assuming that the full capacity of the Sphere is used, which it never would be, because of engineering considerations, the Stator must be capable of 36,000 HP continuously.

The primary static charge on the field must be only of such capacity that it will occasion induction of the Ether and in the initial stage cause implosion, and afterward sustain this densified Ether in the glowing state to the capacity of the load when connected between the PD earth-atmospheric stressfield.

But if the Stator is to be loaded to its full capacity, which we have seen is calculated for practical purposes as 9000 HP (effective), then 36000 HP of energy must be drawn from the earth.

Now let X = the amps charge required by the field; then

500 x X x 100 / 746 x 9000 = 135 amps at 100 volts,

or let us say 13,500 watts, which is converted into glowing energy 500 times as powerful (taking a value of half of Schappeller's constant).

This really signifies that the Stator field must be able to hold and transfer 13,500 watts per minute, which, as has been explained, is actually supplied or drawn up from the earth through the earthing connection shown in the drawing and diagram. The voltage required for the charge is only that necessary to impress the charge into the sublimate.

After electropy has taken place there are, speaking the language of the present elelctrotechnique, no volts in the actual core, as they are densified to amps. Hence we say 1 volt for purposes of calculation.

Thus the capacity of the field in any given design depends on:

(1) The rate at which power is to be drawn;
(2) The total effective area of the nest of tubes, which may have three or four rows, arranged concentrically as one continuous field.

The designs and drawings which have already been prepared are actually for a 15 HP Prime Mover, the Stator being odthe dimensions given in the calculation. So that instead of supplying 9000 HP it has in the first demonstration only to supply 15 HP.

The above calculations are thus only intended to show the function which this type of field has to perform.

The 15 cm Stator is about the smallest that is mechanically practical to produce.

Here, it should perhaps be made clear that the cost of a complete Prime Mover (Stator and Rotor) is negligible. The main cost of demonstrating the application to mechanical power lies in the purchase of the charging plants and standby sets, which later are absolutely necessary for certain reasons, and also Schappeller's special plant for the production of the initial sublimate by occasioning transpiration, followed by condensation and sublimation, all in the energy form.

Let it therefore be clearly understood that any suggestion of small laboratory models or the like is out of the question or they would obviously have been used and the application of the Primary Force to mechanical power would long since have been tested out. The transpiration could not be produced by models and the essential sublimate could not therefore be produced except by a plant of certain minimum dimensions capable of producing transpiration, and this also applies to the Stator and Rotor which is obvious here when the design of the Stator is carefully examined.

The Functioning of the New Prime Mover

From a careful study of the Force Diagram it may be said that a very small initial movement of the lever represents an inconceivably large "available force", but the diagram also shows, in relation to this, that the "braking effect" at small angles of movement of the lever is much greater than at larger angles, as shown by the cross-hatched and hatched areas; and if the two units (Stator and Rotor) of the Prime Mover are carefully designed, and set for the average and maximum loads required in each case where such Prime Movers are to be installed, the "graduation curve of force" relative to lever angles can be favorable, within the ranges of power required in each particular case.

It will thus be seen that there is a characteristic curve for this, just as there is for every motor or generator in the present electrotechnique; or it is perhaps the equivalent of the Zeuner diagrams for reciprocating steam engines.

For the moment, however, we are not concerned here so much with the design as with the actual functioning of the Prime Mover.

We have seen that whichever way we make our preliminary calculations for estimating the power available, the power exerted on the Rotor is in the form of a pull as between the poles of two magnets. It is, however, from the mechanical engineer's standpoint, somewhat doubtful whether this force exerted as described here would prove to be an entirely satisfactory method of producing mechanical power, but happily this point is of little or no importance, as it is not the way in which the rotary motion is produced. The pull exerted on the Rotor magnets gives the Rotor periphery its directional motion, but the motion is afterwards sustained or maintained by the crossing of two stressfields, i.e., the Stator stressfield crossing the stressfield of the Rotor -- the means by which the earth gives the sun its rotation on its axis. In other words, it sets up a condition of dynamic balance, or an equilibrium which can only be satisfied by producing the requisite motion.

The sun is a product of the earth's stressfield and is thus biomagnetically characterized by it and to it.

Likewise, in the case of the Stator and Rotor, the Rotor being energized entirely -- both qualitatively and quantitatively -- by the Stator, rotary motion is imparted and maintained in the Rotor provided always that directional pull has been given, and here it is also sustained, i.e., the direct pull on the magnet.

In the case of the earth and sun we have motion imparted and sustained in the latter's core of glowing magnetism, which is crossed -- and thus energized and characterized -- by the earth's stressfield, whereas with the Stator and the Rotor we have artificially not exactly a similar, but an equivalent condition, viz., we have set up in a Rotor an energized field stimulated and characterized for a given Stator, but here, since the Rotor field is in the cold condition and the Stator field, although exactly similar in quality, is in the glowing or hot condition (energy form), a magnetic-heat potential exists between the two units of the Prime Mover.

This is a striking example of the Schappeller discovery shown graphically in the first of his symbols in Chapter VII, viz., magnetism and heat as one, which does not exist in the present Physics, that is, magnetism with heat-potential, the source of the greatest force which exists in Nature.

Figure 16:

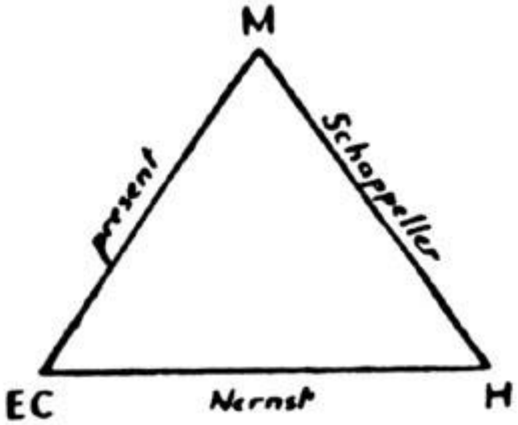


FIG. 16

Figure 16

It is for this reason that the whole body of the Rotor with its spokes, in addition to the actual magnets, is filled with sublimate and energized through an electric current generated directly in the Stator itself. Directional pull is then given directly on the peripheral magnets and the whole energized Rotor is then cutting lines of force at a speed determined by the magnetic-heat potential and the load, adjustable as follows:

(1) By the strength of the current supplied to the Rotor sublimate being variable as in the present electrotechnique.

(2) By the Stator field heat-potential which, according to Schappeller, may be of the order of 50-300° C, whereas the Ether or cold latent magnetism will always be constant, probably as low as -270° (more or less) even near the earth' surface. The intensity of the field and heat-potential will vary with the initial charge given to the sublimate.

(3) By moving the Stator lever and thus altering the angle of the N-S poles in the Stator Sphere with relation to the rotary periphery.

(4) By adjusting the relative positions of the Stator and Rotor. Stator N-S line need not be vertical when on the neutral position.

The Rotor is laminated to prevent eddying and the magnets do not project; the Rotor periphery is thus entirely equiradial. The Rotor is fixed to the shaft to be driven and the Stator is fixed about a meter above the earth’s surface. This latter is, of course, flexible because the earth can include the sea or even the floor of an ether-ship.

From one standpoint the Stator may be regarded as a body in Space. The concentration of the ether or latent magnetism takes place over the entire surface of the Sphere, in the same way as in the case of the Earth itself. It represents as it were a "power-field" concentrating on the central point of the Sphere. But actual concentration will take place only if and when a potential difference exists between the density in the latent magnetism outside and inside the Sphere cavity, which again will depend on the existence of a heat potential.

When the Sphere cavity is full of air the ether density will be balanced, and this is, of course, the position when the lever is first pushed off the stop or neutral position.

A power field therefore exists outside the cavity (or hollow center of the Stator Sphere) which is ever ready to concentrate with tremendous energy or atomic pressure at the center point of the cavity the moment a heat-potential exists or is produced.

Now the instant the lever is pushed off the neutral point the Stator Sphere is polarized, or possesses an N and S pole although the N and S line may only be a few degrees out of the vertical neutral position. The Force Diagram s set out for the vertical at the "neutral position" but it need not be.

The field is energized the moment the Stator is switched on. The ether balance inside and outside is no longer stable; pressure due to the field is exerted on the center of the cavity, and stream of cold latent magnetism (or ether) flows from the N to the S pole, the only pathway at present available as the air is still in the cavity.

An aver-increasing pressure from the field concentrates on the center and the air (which is merely a sublimate out of the ether) is disintegrated; that is, the nitrogen and residue (the noble gases) are reconverted into the energy form as hydrogen, and the oxygen to oxygen energy; in other words, the whole is reconverted into ether and concentrated.

The now powerful concentration of the field on the center of the cavity, after removing the air, induces an inrush of ether through the entire surface of the Sphere, resulting in a tremendous concentration of ether in the cavity. The pressure increases until finally the whole ether mass reaches a density corresponding to a critical temperature above which this densified ether enters into the glowing state and a powerful heat-potential is established.

But it will be clearly understood by now that this is not merely heat-potential such as operates a thermodynamic cycle, but a magnetic heat-potential due to magnetism as densified in the glowing state.

In the Chapter on the Electric Current the formula Current = gauss/0 was given as being the equivalent of Ohm's law for the production of electromagnetism by the new Primary Technique, and the significance of the factors in this formula can now be understood.

C = gauss (vacuum)/0

C = current, but current as such does not exist in the Primary technique because, as we know, here the electricity is static and the magnetism moves -- hence the term *dynomagnetism*.

C in the Primary Technique thus signifies not current as such, but its static potential, viz. densified volts or amps.

As has been explained, the BEMF is lifted and becomes the surrounding stress designated in the formula as the field under the term gauss. Here, however, this does not mean merely the field produced by the sublimate as such, but rather the complementary other half of the glowing magnetic core or ether concentration as volts. The two, i.e., glowing core (amps) and complementary stressfield (volts) constitute (as in the case of the sun and its complementary stressfield) a primary vacuum -- hence the word vacuum in brackets next to gauss.

Now this concentration of the stressfield is virtually on one point, which produces and sustains a physical center.

The Euclidian definition of a point is that it has no magnitude, so mathematically its dimensions are zero or 0, and C is therefore (theoretically) infinity.

The reason that it is not actually infinity is because of the limitations of "form" due to the construction of the apparatus. The sun's resultant magnetic field is so vast that it may be termed for all practical purposes infinite in extent.

We have thus constructed artificially an apparatus which will set up the conditions in which Primary vacuum will form and be maintained, or, speaking technically, an artificial sun and its surrounding stressfield. This is the biomagnetic static force, the atomic force, for which scientists are researching, but in its free original state as a potential difference by the building up of the atom, instead of endeavoring to obtain this force in its secondary form, where it appears as Cohesive Force in material, and then attempting to split it up, when it is neither collectible nor biomagnetic but devitalized.

It should be clearly understood that it is impossible for any apparatus to produce glowing magnetism, just as it is impossible for any kettle or boiler to produce steam; such apparatus can only be constructed to bring about the conditions in which these phenomena will obtain. In purely colloquial language it is, of course, exactly the same thing, but speaking strictly scientifically it is very important to keep this clearly in our minds.

But to continue with the Technique. This glowing magnetism in the central cavity has not merely enormous suction force, in that the surrounding ether concentration is induced into it through and by the powerful field concentration on the center point, but it acts as a catalyst, that is, it catalyzes the carbon energy static (the Ether) and compresses it; the reaction must therefore be the opposite -- expansion -- and it is thus radiating it out as a stimulated (instead of latent) H and Of power field, or true bioelectromagnetic radiation or stress.

It draws between the potential difference earth-atmosphere (as a stressfield) -- this is the PD -- but the reservoir of energy from which it draws is the biomagnetic saturation of the earth (H and O energy) which the earth derives from its central core, hence the imaginary doted line in the **Schematic Diagram** showing the return of the fundamental energy cycle to the earth's central core, in principle.

The actual suction exerted is to supply the energy taken from the Sphere by whatever load is being carried (the load need not necessarily be mechanical power -- it may be reproduction of primary light or heat, curative radiation, or the production of one of the essential elements, or for various other purposes) is drawn up through the earthing tube as dynomagnetism, and this energy travels up this tube into the Stator field on the "energized sublimate" and is then projected out of the spherical field by Electropy, due to the central pull exerted on the spherical field by the physical center or core caused by the load.

The suction exerted by the glowing magnetism through the field could only draw energy up on energy, that is, on an energized sublimate, and then only if the Stator constitutes a physical link between the magnetic potential difference occasioned by magnetism bound (as in the earth's crust) and in the free state as ether or the surrounding earth's atmosphere -- thus operating the Primary Cycle.

Bu this action, followed by the reverse, this "energy-breathing" or transpiration occasioned by mobility (as we saw in the case of the sun) does not happen simply because it does.

It is ordered, disciplined, and in fact occasioned by entropy.

In that instant when the concentration of magnetism is brought to the glowing state the energy spiral or entropy spiral starts functioning up and down the Stator windings, and, of course, always in one sense and with a high frequency which Schappeller declares is probably of the order of 10^4 cycles per second.

This entropy spiral is always present in that instant when mobility obtains sue to a glowing core functioning in a fundamental PD -- and here we have produced these essential conditions artificially through apparatus, the classic example previously given being the sun or any cosmic variant.

It may be said that frequencies in the radio technique of today are far higher, but the work performed in one cycle is very much less. In the Primary Technique the concentrated stressfield is drawn in, catalyzed, and forced out in one cycle as a stressfield.

This stressfield, or radiating magnetic stressfield, is available as an attractive or repulsive force for the production of mechanical power if a complementary unit of the Stator, that is, a suitably designed Rotor or mechanical appliance (to be driven) itself contains a like substance, upon which magnetism produced in this atomic state, or energy form, can react -- the whole, that is the two separate and complementary units, viz., Stator and Rotor, constituting a single Prime Mover, as has already been explained.

The Force Exerted on the Stator

Let us now consider what reaction must be supported or sustained by the Stator where mechanical power is being produced in its complementary unit, the Rotor.

The figure for directional pull, according to our calculations, was 675,000 kilos -- the maximum effective power obtainable from a Prime Mover of this size, but which would never be used in practice.

Obviously, as can be seen from the drawing, the Stator would be bolted down and presumably these bolts would have to take the reaction arising from the attraction exerted on the peripheral Rotor magnets of 675,000 kilos. But mysterious as it may sound, the casting and bolts of the Stator would experience no reaction whatever although the same law holds here, viz., that wherever there is an action there must be an equal and opposite reaction. In this case, however, the action arises not between magnetism bound to two opposing pieces of steel, in which the two pieces of steel will experience the action and reaction, that is, for example, the Stator of an induction motor of the field magnets and yoke of a DC motor which take the torque reaction exerted on the Rotor, or armature, respectively.

Here the action arises from the force of attraction exerted by a free mass of glowing magnetic energy bound to no material whatever; the reaction therefore will be upon the glowing magnetic core as such, which in its turn will be taken by the complementary stressfield. In other words, the reaction of the pull exerted on the Rotor magnets will be taken on the ether concentration arising from the Stator core.

Now consider the reaction on the Rotor. Here, as regards this force, we have similar conditions to those in electric motors of the present day, because the energized sublimate on which the pull is exerted is within or embedded in the steel Rotor casting and the pull will thus be transferred to the casting and thence to the shaft to be driven, and of course will be proportional to the speed and load.

It is obvious that in every case the Stator would be firmly bolted down for stability, but not in order to take the reaction. The important engineering consideration here is that the casting would not have to be designed to take this stress.

Fatigue of Metal

The steel casting of the Stator would, however, experience fatigue with time, due to the primary flux and, allowing a suitable factor of safety, warship engines, for example, might be renewed say every eight to ten years -- not a serious consideration, since engines or propelling machinery would then consist merely of Stators and Rotors, and the Rotors would not experience anything like the same fatigue.

Furthermore, with the introduction of the Primary Force new forms of instruments would be available for every kind of measurement, including this form of "metal fatigue".

Temperature of the Stator

At first sight it might be thought that the production of an "artificial sun" or glowing magnetism core would involve with it the inevitable production of enormous temperatures, and although this has already been dealt with, a few words here in the Technique may not be out of place.

Temperature is a word that we are accustomed to use when we wish to express the intensity of heat, whereas a calorie is a unit expressing quantity of heat, rather perhaps the equivalent in electrotechnique of volts and amps. But heat expressing both the above measurements is a phenomenon which is associated with air. There is no air in the Stator. If the stem of a thermoelectric pyrometer were allowed to project into the Sphere cavity, the terrific compression and densification brought about when the Stator was switched on would cause it to disintegrate and disappear; no material of any kind could exist, as such, in a glowing core. So, the light-material produced in the Stator (as in the sun) is the product, not of temperature, but of compression through densification.

This glowing core is the densest material that can exist, for two definite reasons:

(a) because it is all energy-material and there are no interstices;

(b) because this primary magnetic material is not merely under exterior compression but is itself the cause of this compression, since every particle of this energy exerts attraction on every other particle and towards a common center.

In compressing or exerting compression upon itself it is "doing work" only upon itself; there is neither air nor a material (gaseous, liquid or solid) within the core which could absorb, transmit, reflect or convert this energy into heat.

But the periphery of the core contacts with the special inner lining -- a suitable ceramic -- of the Stator Sphere, and this peripheral or surface energy will be converted into heat, but on a relatively very moderate scale. Schappeller gives this figure at between 50-300° C., according to the density required, whereas the periphery of the steel Sphere casing would be much less than this (See Chapter XXIV, p. 172, para. 2).

The Arrangement of the Plant for Power Production

Let us first consider the problem as applied to marine propulsion. Given a single propeller shaft to transmit, say 8000 HP, we should not use one Sphere but perhaps eight, distributed on each side of the shaft, or any convenient number to give a rational compromise between a good characteristic curve and a well-distributed torque on the shaft, the propeller shaft being provided with an equal number of Rotors.

The Universal Transmission of Electromagnetic Power

This title expresses the dream or final goal of the great physicist Nikola Tesla (about 1905). In his British Patent No. 8200, he claims to have devised apparatus capable of generating "electrical disturbances" not only approximating to, but even surpassing those of lightning; and he further claims to have reproduced by the aid of such apparatus the phenomenon of "stationary waves" on the earth. Or World-waves. By means of such waves he professed to transmit electrical power without the employment of cables.

This dream is now within the reach of Science through the new Primary Technique.

Let us compare the principles of Nikola Tesla and the present radio-technique with that of the work of Karl Schappeller.

The whole of modern radio-technique depends on making a disturbance in the ether through the generation of electrical resonance.

During a thunderstorm Tesla noted that the earth appeared to behave, despite its vast extent, like a conductor of limited dimensions.

He suggested that the wholesale distribution of electrical energy might be possible by means of stationary waves on the earth’s surface, using the entire world as a conductor.

So whilst Tesla regarded the earth merely as a conductor, Schappeller discovered that it was the obvious source and storehouse of all available energy, in addition to being a conductor.

Tesla’s discovery was of a secondary nature and led him to produce and transmit power by causing a disturbance in the ether through wave propagation by resonance, in which the earth functioned merely as a conductor.

Nearly 40 years have elapsed but it is still not feasible to transmit power as such on the Tesla system [ed.: only because of industrial politics], although the radio-technique has been developed with great success.

Schappeller has always regarded the "causing of a disturbance in the Ether" for the purpose of transmitting power on a large scale as neither feasible nor desirable, and even for small powers, such a are used in the radio-technique, he regarded it as an "invert method".

The Cosmos itself functions, as we have seen, by stressfield on stressfield or vacuum on vacuum.

The secret for the transmission of power on a large scale over considerable distances lies in the rhythmical stimulation of the Ether membrane, of like kind, rather than a disturbance produced by an entirely artificial propagation of what, at present, is termed "wave formation".

The production of a spark is a disruption, whereas the formation of a sun or other variant is not, because the latter is the orderly or disciplined formation of a sublimate out of one of the ether components itself, through polarization -- Nature’s universal method.

Again, resonance is a disturbance; a power or biomagnetic stressfield is not. On the contrary, it is a stimulation which can be utilized through the New Technique for power transmission, telegraphy, telephony, television, production of light and heat, sublimation in place of transmutation of metals, and in the curative applications already cited -- and all these in a manner far in advance of that made possible by the highest and latest developments of the techniques based on the Secondary Physics.

Schappeller, in principle, cannot be wrong in this because it is the method by which Nature herself operates in the Cosmos, and the only method available to her.

So magnetism is radiated which, from the physiological point of view, is not merely harmless but actually beneficial and stimulating to desirable forms of life (a subject dealt with in the medical Section).

The transmission of great power is accomplished by the installation of Power Centrals, that is, Stators of larger dimensions designed for transmission of energy to the thousands of power or telephone (new form) Stators throughout a given district -- the equivalent of the present transformers or boosters, which will in fact constitute the "new grid". But this dynamic or "energy grid" is free, mobile, unbound to material or wires, and in its turn is supplied from a Central Station of powerful Stators.

This is the ultimate application of the Primary technique as a whole; in the earlier stages, the present generating stations and grid could be utilized, substituting for turbo- or hydro-electric Prime Movers the new Stators and Rotors, the Prime Mover set of the New Technique.

The distributing Central Spheres of "Centrals" or mobile grid boosters, Schappeller declares, will have an effective range of up to 10 kilometers.

It will probably by now be obvious that since this is "biomagnetism" there will be technical and other applications of the Primary Force of a fundamental character, the nature of which cannot yet be either conceived or visualized.

Robert L. SCRAGG

Solar Reactor Engine

"A Law of Physics Repealed?"
"Fantasy Or Real: Cars, Planes That Run On Light?"
"Found: Virtually Unlimited Energy"

US Patent # 3,988,205 ~ Solar Reactor Steam Generator Method & Apparatus
US Patent # 4,024,715 ~ Solar Reactor Engine
US Patent # 4,026,112 ~ Solar Reactor Engine
US Patent # 4,070,861 ~ Solar Reactor Combustion Chamber
US Patent # 4,175,381 ~ Electromagnetic Reactor Engine System ~ Apparatus & Method
US Patent # 4,426,354 ~ Power Generator System For HCl Reaction
US Patent # 4,374,288 ~ Electromagnetic Process and Apparatus for Making Methanol
US Patent # 6,000,214 ~ Detonation Cycle Gas Turbine Engine System Having Intermittent Fuel and Air Delivery

---

***Spotlight* (April 18, 1979)**

"A Law of Physics Repealed?"

Reported in the Washington Star recently was the astounding news that the Solar Reactor Corp. of Miami has solved just about all of man's energy problems forever through a process even the inventor doesn't understand. The company says any amount of energy can be produced at virtually no cost and with no environmental problems. Although company spokesmen say they don't like the term, what they described at a recent news conference in Washington is a perpetual motion machine that produces more energy than it consumes, a process that seems to violate the generally accepted laws of physics. Apparently, hydrogen and chlorine are pumped into a container where, in the presence of oxygen, they are exposed to some source of energy -- perhaps artificial light, the sun, or low-level radiation from nuclear waste. The result is an ionized hydrochloric gas containing great amounts of energy which can then be recovered for use through a turbine or other means. it is kinetic energy, not heat energy, so the process is cool and easy to use. The tests have used artificial light because sunlight is too powerful and the people involved are scared about what might happen if it were used. The process was invented by Robert L. Scragg of West Virginia, and the company said it would not accept money from the public but is looking for private backers to raise the $5 million needed to create an operational prototype. They expect to be in production within two or three years.

***Tribune* (7-1-79)**

"Fantasy Or Real: Cars, Planes That Run On Light?"

UPI ~ Ships, locomotives and airliners that carry no fuel. An automobile uses only a small supply of hydrochloric acid as a power medium -- over and over again. A power plant generates electricity without consuming coal, petroleum or uranium.

Fantasy or real possibilities?

A Miami engineering firm has several small internal combustion engines already being run in this manner on ultraviolet light without requiring any real fuel.

A California engineer says he is preparing to use an ultraviolet laser to extract hydrogen from water continually to power an automobile.

No firm answer can yet be given to the question of whether either process is the key to solving the world's energy problems. But the leading article in the may Scientific American by Prof. Avigdor N. Ronn of Brooklyn College, entitled "Laser Chemistry", makes it clear that chemists around the world are working busily trying to use the energy of light as opposed to heat, the source of all energy up to now.

If it turns out as chemists are starting to believe, that light can trigger controlled chemical reactions to produce enormously more energy than any thermal reaction from fossil fuel, then man indeed could be on the threshold of a truly unlimited source of energy. We could stop using coal or petroleum for fuel and reserve it all for chemical feedstocks, particularly for fertilizer chemicals to produce food.

The bitter issue over nuclear power would subside for nuclear power simply no longer would be needed. Uranium, henceforth, would be useful only for making weapons.

The supply of light in nature is unlimited, and artificial light in the small amounts needed to set off chemical reactions to produce large amounts of energy can be obtained easily and cheaply from an ordinary automobile generator and storage battery.

The Miami firm that is running small engines on ultraviolet light is Solar Reactor Corp., headed by Robin Parker. It is working on a reaction discovered partly by accident by Robert Scragg, an inventor. Scragg learned that ultraviolet light can set off a reaction between hydrogen and chlorine producing many times as much mechanical energy in a small engine as gasoline or diesel fuel.

Further, the reaction can be produced in a closed loop with the small amount of hydrochloric acid used over and over again like the vapor medium in a Rankine cycle steam engine.

The actual energy used in the reaction comes from small ultraviolet light plugs resembling spark plugs made for Solar Reactor by Champion Spark Plug Co.

It looks like the nearest thing to perpetual motion yet achieved although it isn't really that. Parker and Scragg have no yet built the closed loop but they say it can be built out of off-the-shelf hardware available from several chemical equipment manufacturers.

So far they have operated a Honda 4-cycle motorcycle engine, two small Tecumseh appliance engines, and a tiny turbine engine they built themselves by the method.

Parker says they are planning to build a closed loop light engine for an automobile, one for a boat, and one for a stationary motor-generator set. Ordinary 4-cycle engines will be used. They have to be modified because no compression stroke is needed, but the valves are needed. The engines will fire like a 2-cycle engine, thus doubling the mechanical energy output.

All this will take time and money, which must be raised. Parker, who is an architect by profession, says the 10 owners of Solar Reactor are willing to license the process free to any company who will proceed to put it to work, but they will not license it to anyone who wants to delay action.

Scragg made his discovery after realizing that all solar energy research up to now has been concerned with thermal energy, or the infrared end of the electromagnetic spectrum whereas light contains more energy. It is light, not heat, that makes plants grow. Light has the energy to move itself at a speed of 186,000 miles a second. This led him to think about the laser, a device for utilizing light energy invented some 20 years ago. But the laser is a very expensive device and has never lived up to original expectations. [This was written in 1979]

Then one day he ran across a report published in the 1920s by a graduate student saying that, in the presence of ordinary ultraviolet light, hydrogen and chlorine react with extreme violence to produce vast amounts of energy. Scragg was staggered.

Scragg experimented successfully, then sought backers. Hydrochloric acid is easily made from seawater, is easily broken down into hydrogen and chlorine, and easily put back together. It takes as much energy to extract it from water as the energy it contains, but what difference does that make of you can use it over and over again more or less indefinitely?

Brooklyn College's Dr. Ronn said he knows Scragg and has discussed his discovery with him. Ronn said it may have all the potential Scragg believes, but it will take a lot of time and money to prove it.

The closed loop is essential to prolonged operation of the light engine, not only to avoid consuming the hydrogen and chlorine but to prevent an exhaust. An exhaust from such an engine would be quite toxic and corrosive.

Scragg and Parker estimate that an automobile powered by a light engine would carry one to three gallons of hydrochloric acid in its closed loop system. The acid would pass through a converter to be broken down into hydrogen and chlorine and the separate gases then would be fed into the engine's cylinders and would react together as the ultraviolet plugs emitted light, creating an expansion to drive the pistons. Acceleration and deceleration would be controlled by a rheostat varying the timing of the light plugs, not by varying the flow of the gases.

Even though the reaction is induced by light instead of heat, the temperature in the center of the cylinder reaches 1,000 degrees Fahrenheit. The thermal energy thus created without combustion is at least four times that of a gasoline engine and the mechanical energy appears to be up to 14 times as high as a gasoline engine of the same size.

At 1,000 F., gaseous hydrochloric acid is not corrosive to metals, but as the gas leaves the cylinders it goes through a scrubber to return it to liquid hydrochloric acid to renew the cycle.

Scragg and Parker concede that they do not fully understand what happens inside one of their engines when they are running, and that the action appears to violate some of the accepted laws of thermodynamics. That is one reason so much work must be done.

"Found: Virtually Unlimited Energy"

by

Burch B. Stewart, Ph. D.

On March, 1979, an exciting discovery regarding the use of hydrogen as a fuel was made by a Miami-based firm called Solar Reactor Corporation. The basic process was first discovered in 1975 by Robert Scragg, a Miami inventor. The basic process and other aspects are now covered by seven US patents including coverage in 20 countries.

More Energetic Than Gasoline

How much energy can one expect to obtain by exploding hydrogen instead of gasoline? On an equal weight basis the normal hydrogen explosion produces approximately three times a much energy as gasoline. What does the new hydrogen process (involving hydrogen, chlorine and radiation) produce? Based on numerous recent careful tests made by two independent laboratories (one was H.P. White Laboratory, Belair, MD) the new process produces almost five times more kinetic (motion) energy than the explosion of hydrogen with oxygen. On the basis of an equal weight of fuel, the new hydrogen process produces 14 times more motion energy than gasoline. This is the highest energy output of any known process (other than nuclear reactions such as fusion or fission)

How Tests Were Made

A series of precise side-by-side experiments were carefully carried out to determine the kinetic energies resulting when a projectile (wooden ball) was given a high impulse thrust out of a mortar using controlled explosions of hydrogen. Hydrogen-0xygen-arc radiation produced a normal explosion which propelled the wooden ball with predictable kinetic energy. A side-by side test using hydrogen-chlorine-arc radiation, identical in every way except for the substitution of oxygen, gave an impressive result: almost five times greater kinetic energy was obtained using hydrogen-chlorine-arc. The energies were determined from precise velocity measurements using standard ballistics techniques and electrical equipment. The overall test set-up is shown in the first photograph. Close-ups of the mortar, reactor, and projectile are shown in the other photographs. [Not included here]

Significance Of Findings

(1) Virtually unlimited energy can be obtained by proper utilization of the process. Since hydrogen and chlorine are readily available from sea water, there is no shortage of fuel and oxidant.

(2) Since the product of the explosion is primarily hydrochloric acid, the hydrogen and chlorine needed for the second cycle can be obtained from the product, suing known or improved electrolysis technology. In other words, the fuel can be recycled.

Future Possibilities

(1) Since the yield of kinetic energy is extremely high, very efficient lightweight kinetic engines can be used with this process. Thus the process can be applied to internal combustion engines, rotary engines, rockets, and gas turbines.

(2) Since plasma (mixture of ions and electrons) is produced in the explosion, the process can be used to obtain byproduct electrical current (for example, using a magnetohydrodynamic generator).

(3) Since the kinetic energy is extremely high, electricity can be generated on a small scale (50 kilowatts) as well as on a large scale (1,000 megawatts).

US Patent # 3,988,205

(December 21, 1976)

Solar Reactor Steam Generator Method & Apparatus

Robert L. Scragg

Abstract -- A solar reactor steam generator is disclosed which includes a concrete housing with reactor chamber, tubular heat exchanger, solar sight glass, and solar intensifier. In one embodiment, the reactor chamber is cylindrical. Inside the chamber is a heat exchanger which consists of a single pass helical tube stack which absorbs and conducts convective, conductive, and radiated heats of reactions to liquids or vapors inside the tube. A solar intensifier, such as a parabolic reflector, is mounted on top of the reactor housing. It collects and intensifies solar rays, then guides them down through a solar sight glass, mounted in top of the housing, into the reactor chamber, onto a reflector cone which disperses solar rays throughout the chamber. Hydrogen, chlorine, and atmospheric oxygen are piped into the reactor chamber via tubing. The hydrogen and chlorine react with controlled explosive violence when exposed to the solar rays. It should be understood that high intensity lamps can be used in the absence of solar rays. In another embodiment of this invention, carbonaceous blocks with single pass tube configurations are used in a rectangular reactor chamber.

Inventors: Scragg; Robert L. (2937 SW. 27th Ave., Miami, FL 33133); Parker; Alfred B. (2937 SW. 27th Ave., Miami, FL 33133)
Appl. No.: 564087 ~ Filed: April 1, 1975

Current U.S. Class: 126/609; 60/641.15; 126/686
Intern'l Class: F24J 003/02
Field of Search: 126/270,271 237/1 A 290/2 60/641 62/2 136/89

References Cited [Referenced By]

U.S. Patent Documents
3070703 Dec., 1962 Podolny 126/270.

Description

Background of the Invention:

This invention relates to reactors and boilers and more specifically to solar reactors and boilers utilizing tungsten carbide tubing and silicon carbide blocks with tube configurations as mediums for absorbing conductive, convective, and compression heats, and infrared radiation; and utilizes gaseous or liquid hydrogen and chlorine as reactants.

In the process of generating steam for power turbines or for other processes, two basic methods are used to produce heat for generating steam. One is external or atmospheric combustion of fossil fuels which conducts and convects heats of combustion around or through fire or water tube boilers. A second method is the internal reaction of nuclear radiation which radiates, conducts, and convects radiated heat into exchange mediums that conduct and convect the heats to water tube or vessel boilers. Both of these systems have several factors in common when used as primary heat sources in large utility power generation, i.e., they can't be turned on and off, cooled or heated on a cyclic basis to meet consumer load demands placed on utilities. Therefore, they generate a surplus of power during low demand periods, i.e., from 10:00 P.M. to 6:00 A.M., and do not generate enough power during high demand periods such as from 6:00 A.M. to 10:00 P.M. Both of these systems are restricted to utilizing only conducted and convected heats directly to the heated tube or vessel exchange mediums. In addition, both of these systems are hazardous to the environment and are limited in efficiency due to the heat exchange mediums available sources of combustion and radiation known in the art.

It therefore is an object of this invention to provide a method for generating steam for power turbines during daylight high load demand periods.

It is another object of this invention to provide a method of utilizing fuels and reactants which can be produced by electrolysis cells during nighttime low load demand periods.

It is another object of this invention to provide a method for utilizing conductive, convective, radiated, and compressive heats directly as heat exchange mediums.

It is another object of this invention to provide a method of generating steam that is non-hazardous to the environment.

It is another object of this invention to provide a method of generating steam more efficiently.

It is another object of this invention to provide a method of converting electrical power into fuels and/or reactants and then storing same.

It is another object of this invention to provide a method of utilizing stored fuels and/or reactants to generate steam when load demands are high.

Short Statement of Invention

Accordingly, this invention relates to a solar reactor steam generator method and apparatus and its application in the electrical power generating process and includes a method of producing fuels and/or reactants for the solar reactor. An electrical power generator provides AC power to a power rectifier which thereby produces direct current. The direct current powers a chlorine-sodium hydroxide electrolysis cell. Hydrogen produced by the cell is compressed and stored until needed. Chlorine produced by the cell is compressed and also stored until needed. Sodium hydroxide and sodium chloride produced by the cell are used for suitable processes as desired. During daylight hours, solar rays are received by a parabolic reflector or other suitable focusing means which is controlled by an automated azimuth tracker. The parabolic reflector concentrates the solar rays into an intense focal point reflector whih reflects the intense solar beam via a series of reflectors, through a solar sight glass into the reactor chamber, and onto the surface of a conical reflector at the base of the chamber which disperses the solar rays throughout the chamber. Hydrogen and chlorine from the storage tanks are fed into the solar reactor chamber, which is cylindrical and contains a helical tube stack pressed against the chamber wall. Water is fed into the base port of the tube stack. The hydrogen and chlorine react with controlled explosive violence when exposed to intensified solar rays thereby producing intense heat within the chamber. The heat vaporizes the water in the tube stack, producing steam at the top tube port. The steam is fed to the power turbine where it is used in the power generating process.

In another embodiment of this invention, a rectangular reactor chamber is provided with carbonaceous blocks containing a fluid conducting tube therein. In this embodiment a pyramid reflector at the base of the chamber is utilized.

Brief Description of the Drawings

Other objects, features and advantages of the invention will become more fully understood from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIG. 1 is a section view taken in elevation of one embodiment of the solar reactor steam generator;

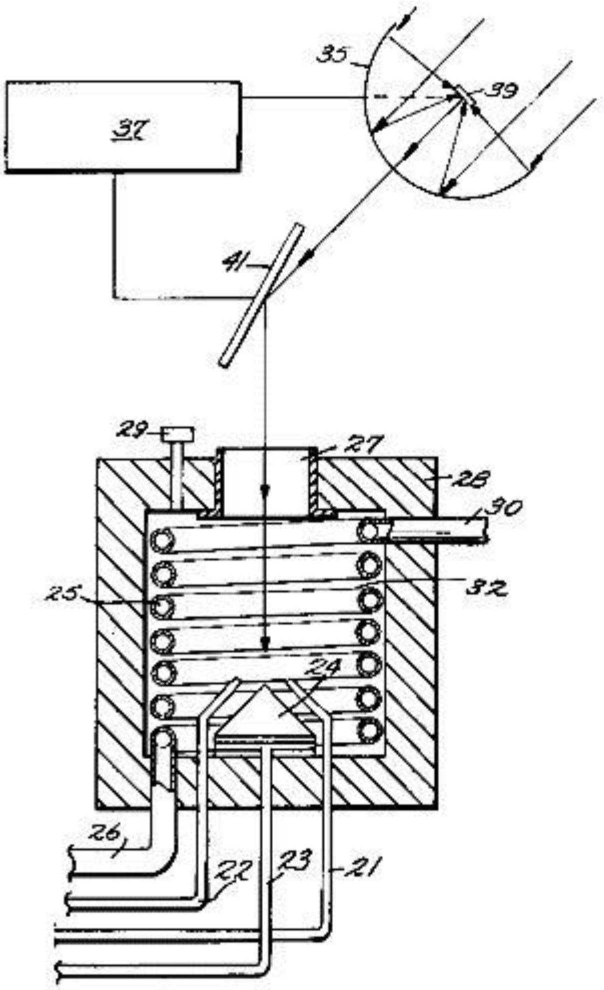


FIG. 2 is a section view taken in elevation of another embodiment of the solar reactor steam generator;

Fig. 2.

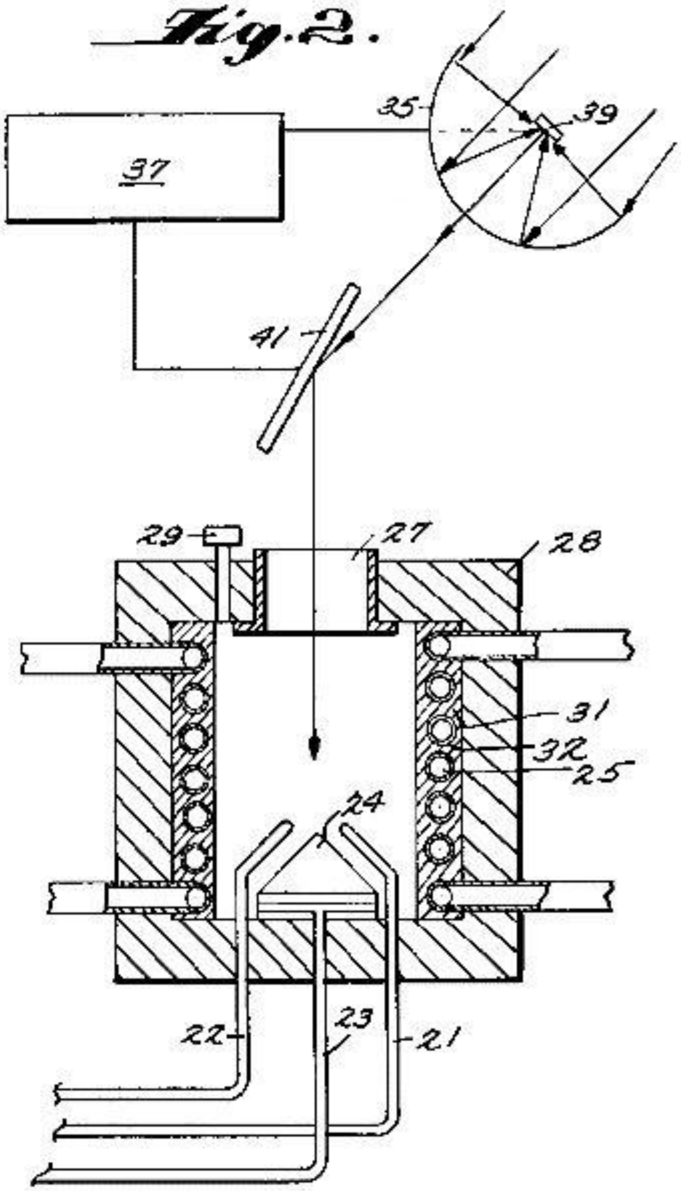
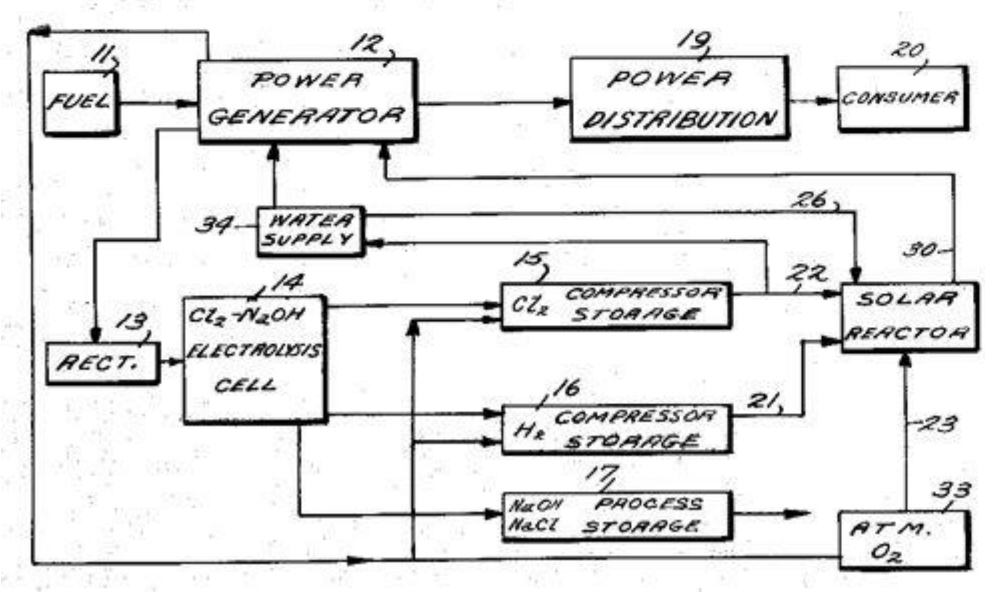


FIG. 3 is a block diagram of the solar reactor steam generator illustrating the reactant producing process.



Detailed Description of the Embodiments

Throughout the detailed description of the embodiments of the present invention, like numerals will correspond to like elements in the figures.

Refer now to FIG. 1 where there is disclosed a section view of the one embodiment of the solar reactor steam generator. Fuel and/or reactants are fed into the solar reactor chamber 32 via tubes 21 and 22. In the preferred embodiment chlorine is fed into the reactor via tube 22 and hydrogen via tube 21 at controlled rates. Atmospheric oxygen is fed into the cylindrical chamber 32 via tube 23 under the base of conical reflector 24. Water is fed into the exchanger tubing 25 via tube 26. Solar rays are concentrated and intensified by an azimuth tracking parabolic reflector system such as is well known in the art. Solar radiation is received by a parabolic reflector 35 which tracks the sun by means of a conventional azimuth tracker 37. The parabolic reflector concentrates the solar rays into a focal point reflector 39 which reflects the intense solar beam via reflector 41 through the solar sight glass 27. The intensified solar rays are directed downward through solar sight glass 27, which is encased within the reactor chamber wall 28, and onto the surface of conical reflector 24, which disperses the intense solar rays onto the surface of the exchanger tubing 25. Hydrogen and chlorine gas emitted into the chamber 32 via tubes 21 and 22, respectively, react with controlled explosive violence creating intense heat and pressure within the chamber 32. Pressure relief valve 29, shown schematically, release excessive pressure in chamber 32. Heat in the chamber 32 is transferred and absorbed in exchanger tube 25 by conductive, convective, compressive, and infrared radiation, thereby vaporizing the water in the tube 25. The vaporized water is exhausted into tube 30 for utilization in a manner to be described more fully hereinbelow.

Refer now to FIG. 2 where there is disclosed an alternate embodiment of the solar reactor steam generator. In this embodiment, exchanger tubes 25 are enclosed in silicon carbide blocks 31 which are mounted flush to the walls of rectangular chamber 32. The use of silicon carbide to generate steam is more fully disclosed in copending U.S. patent application Ser. No. 534,588, filed Dec. 19, 1974 by the same inventors herewith. The subject of that application is hereby incorporated herein.

Refer now to FIG. 3 where there is disclosed block diagram of fuel source 11, a power generator 12, a distribution system 19, a utilization means 20, a method of generating fuel and/or reactants via a power rectifier circuit 13, a chlorine-sodium hydroxide electrolysis cell 14, a chlorine compressor storage tank 15, a hydrogen compressor storage tank 16, a sodium hydroxide and sodium chloride process and storage tank 17, and the solar reactor steam generator 32 illustrated in FIGS. 1 and 2.

In operation a supply voltage from the alternating current power source 12 is fed to the power rectifier circuit 13. The power rectifier circuit 13 includes a step down transformer which converts the high voltage output of the generator 12 to a relatively low voltage. This voltage is then rectified to provide a direct current which preferably is in the range of, e.g., 3.6-3.75 volts, which is the typical operating range of the electrolysis cell 14. In the event the supply voltage is direct current, the power rectifier 13 is by-passed, and the DC voltage stepped down to the desired voltage range by suitable means known in the art.

It should be understood that a low voltage high current generator, such as, for example, a homopolar generator, could be appropriately driven by a steam turbine to provide current to the electrolysis cell 14. The desired voltage, i.e., 3.6-3.75 volts at the desired current level, depending on the size of the cell 14, is fed to the chlorine-sodium hydroxide electrolysis cell 14. At the same time saline water, or brine, is pumped into the cell. Electrolysis then takes place and chlorine is formed at the cell anode while hydrogen is released at the cell cathode, leaving a 10-15% sodium hydroxide solution and a 10-15% sodium chloride solution in the cell liquor. Accordingly, 70 to 80% of the saline water is converted to hydrogen and chlorine. The chlorine is compressed into storage tank 15. The hydrogen is compressed into storage tank 16. The hydrogen and chlorine are then fed to the solar reactor 32 at a controlled rate by suitable means known in the art. The sodium hydroxide and sodium chloride are fed into process storage tank 17, then used in other processes as desired. The hydrogen is fed into the solar reactor chamber 32 via tube 21. The chlorine is fed into the solar reactor chamber 32 via tube 22. Atmospheric oxygen is fed into the solar reactor chamber 32 from storage tank 33 via tube 23. Water is fed from chlorine treated water storage tank 34 via tube 26 into the heat exchanger tubes 25. Intensified solar rays are directed through sight glass 27, illustrated in FIGS. 1 and 2, into the reactor chamber 32 onto the conical reflector 24 which disperses the solar rays onto the surface of the exchanger tubes 25. The solar rays bring about a reaction of controlled explosive violence between the hydrogen and chlorine, emitting conductive, convective, compressive, and infrared heat. The heat is absorbed by the exchanger tubes 25, vaporizing the water and discharging steam via tube 30 which is then fed to power generator 12 to drive power turbines. Pressure relief valve 29 provides a means for releasing excessive pressures that build up in the reactor chamber 32. The hydrogen chloride exhausted by valve 29 is channeled to an appropriate mechanism for converting the hydrogen chloride to acid or other appropriate compounds as desired.

While the preferred embodiment of applicant's invention has been disclosed, it would be appreciated that there may be other alternate embodiments of applicants' invention which fall within the spirit and scope of the invention as defined by the appended claims.

Claims ~ [Not included here]

US Patent # 4,024,715
(May 24, 1977)

Solar Reactor Engine

Robert L. Scragg

Abstract -- A solar reactor engine is disclosed which includes a concrete or other suitable housing having a reactor chamber therein. In one embodiment, the reactor chamber is cylindrical. A solar intensifier, such as a parabolic reflector, is mounted on top of the reactor housing. The parabolic reflector collects and intensifies solar rays and guides them down through a solar sight glass, mounted on top of the housing, into the reactor chamber. The concentrated beam of light is directed onto a reflector cone within the reactor chamber which disperses solar rays throughout the chamber. Hydrogen and chlorine are conducted into the reactor chamber and react with controlled explosive violence when exposed to the solar rays. Oxygen is used as a control medium to regulate the energy given off by the reaction of the hydrogen and chlorine in the presence of solar energy. The heat and pressure thus formed are utilized to drive a turbine, the output of which is utilized to drive a suitable utilization device. In another embodiment of the invention, the solar reactor engine is housed in a metal or other suitable housing so that the reactor engine can be utilized for propulsion or mobile applications.

Current U.S. Class: 60/641.15; 60/508; 60/509; 60/673

Intern'l Class: F03G 007/02; F01K 025/08; F01K 011/00
Field of Search: 126/400,263,270,271 60/649,673,641,508-515

References Cited: U.S. Patent Documents
3302401 (Feb., 1967) Rockenfeller (60/649).

Background of the Invention

This invention is a continuation-in-part of copending application Ser. No. 564,087, filed Apr. 1, 1975, and titled Solar Reactor Steam Generator Method and Apparatus.

Description

This invention relates to reactors and turbines and more particularly is related to solar reactors and gas turbines which utilize the controlled energies developed by the combination of hydrogen and chlorine in the presence of solar energy to convert this photo-chemical energy into mechanical and/or electrical power.

In the process of converting energy into mechanical and electrical power, many forms of primary movers, i.e. energy converters, have been utilized. The most widely used converters are gasoline and diesel engines, jet engines and gas turbine engines. All of these engines convert fossil fuel into kinetic energy which is then converted directly to mechanical power. Another example of a common converter commonly used in the art is the steam boiler. The steam boiler converts fossil energy into kinetic energy which is then converted to mechanical power by means of steam turbines. It is a characteristic of all of the above-identified energy converters that their efficiency does not exceed 40%. Thus, only 40% of the input BTUs in fuel is converted to output horsepower. Further, each of the aforementioned engines operates with detrimental environmental effects; and all are dependent upon fossil fuels or refined fossil fuels which require tremendous capital investments for recovery, refining and distribution.

It therefore is an object of this invention to provide a method for converting photo-chemical energy to mechanical and/or electrical power in sufficient quantity for direct or supplemental utility operation.

It is another object of this invention to provide a method of utilizing fuels and reactants, which can be produced by electrolysis cells and stored wherever electrical power is available, whether it be in stored or generated capacity.

It is yet another object of this invention to provide a method of utilizing the explosive energies of reactant gases such as hydrogen and chlorine to drive a gas turbine.

It is another object of this invention to provide a method of evacuating exhaust gases to thereby reduce the back pressure of a gas turbine engine thereby resulting in higher efficiencies for the engine.

It is yet another object of this invention to provide a method of generating power in the form of a prime mover or electrical generator which generates no harmful emissions.

It is yet another object of this invention to provide a method of generating power in the form of a prime mover or electrical generator which is more efficient than existing energy converters.

Another object of this invention is to provide a method of generating power in the form of a prime mover or electrical generator that does not utilize fossil or nuclear fuels which may potentially pollute or otherwise harm the environment about the generator.

Short Statement of the Invention

Accordingly the present invention is related to a solar reactor engine which includes a solar reactor chamber having means for controllably coupling chlorine and hydrogen thereto. A parabolic reflector or other suitable focusing means is positioned with respect to the reactor chamber and is controlled by an automated azimuth tracker. The parabolic reflector concentrates the solar rays into an intense focal point reflector which reflects the solar beam via a series of reflectors through a solar sight glass and into the reactor chamber. The beam of light passes through the reactor chamber and onto the surface of a conical reflector at the base of the chamber which disperses the solar rays throughout the chamber. The hydrogen and chlorine coupled to the reactor chamber exothermicly react to generate hydrogen chloride at a high temperature and pressure level. A turbine is positioned on at least a portion of at least one wall of the reactor chamber with the pressurized hydrogen chloride driving the turbine. An exhaust chamber is positioned on the opposite side of the turbine from the reactor chamber wherein the hydrogen chloride is converted to hydrochloric acid to thereby form a partial vacuum in the exhaust chamber. The partial vacuum has the effect of creating an increased pressure differential across the turbine to thereby increase the efficiency of operation of the turbine. The hydrochloric acid is conveyed away from the exhaust chamber.

In another aspect of the invention, batteries are provided for generating an electrical current which is coupled to a chlorine-sodium hydroxide electrolysis cell. The electrical current coupled to the electrolysis cell causes the generation of chlorine and hydrogen therein which is coupled to the solar reactor. At the output of the exhaust chamber of the reactor engine the hydrogen chloride is reacted with sodium hydroxide to thereby produce water and sodium chloride. The water and sodium chloride are coupled back to the chlorine and sodium hydroxide electrolysis cell so that the cycle is continuously repeated.

Brief Description of the Invention

Other objects, features and advantages of the invention will become more fully understood from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIG. 1 is a simplified section view taken in elevation of a preferred embodiment of the solar reactor engine of the present invention;

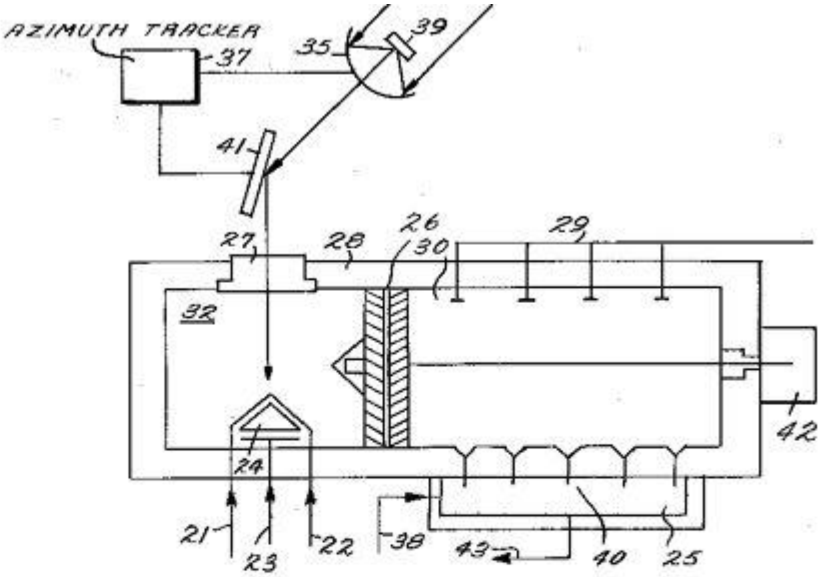


FIG. 2 is a simplified section view taken in elevation of another embodiment of the solar reactor engine of the present invention;

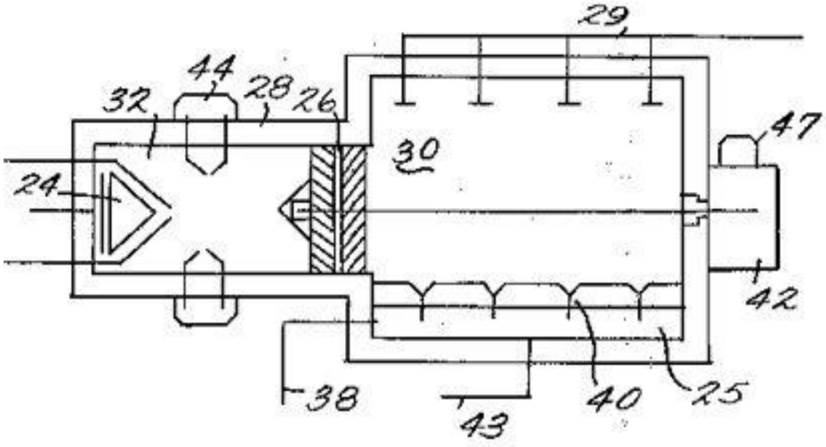


FIG. 3 is a simplified section view taken in elevation which illustrates another embodiment of the solar reactor engine of the present invention;

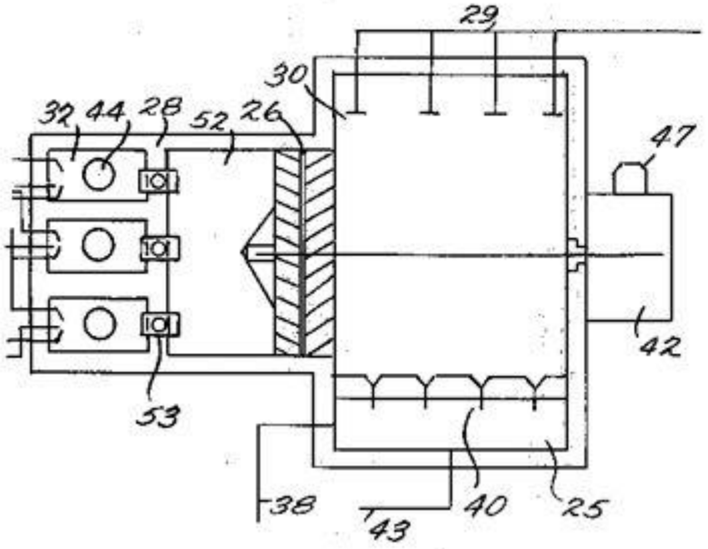
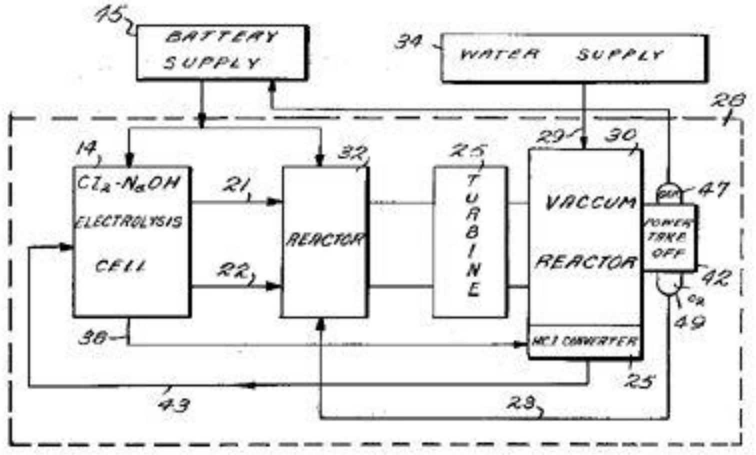


FIG. 4 is a block diagram of the solar reactor engine illustrating the reactant producing process and power generating process in an existing utility power system.

Fig. 4.



Detailed Description of the Embodiments

Throughout the detailed description of the embodiments of the present invention, like numeral will correspond to like elements in the Figures.

Refer now to FIG. 1 where there is disclosed a simplified section view of one embodiment of the solar reactor engine of the present invention. Fuel and/or reactants are fed into a solar reactor chamber 32 via tubes 21 and 22. In the preferred embodiment chlorine is fed into the reactor via tube 22 and hydrogen via tube 21 at controlled rates. Oxygen is fed into chamber 32 via tube 23 under the base of a conical reflector 24.

Solar rays are concentrated and intensified by an azimuth tracking parabolic reflector system such as is well known in the art. Solar radiation is received by a parabolic reflector 35 which tracks the sun by means of a conventional azimuth tracker 37. The parabolic reflector concentrates the solar rays into a focal point reflector 39 which reflects the intense solar beam via reflector 41 through a solar sight glass 27. The intensified solar rays are directed downward through solar sight glass 27, which is encased within the reactor chamber wall 28, and onto the surface of conical reflector 24, which disperses the intense solar rays onto the surface of the reactor walls. Hydrogen and chlorine gas emitted into the chamber 32 via tubes 21 and 22, respectively, react with controlled explosive violence creating hydrogen chloride gas and intense heat and pressure within chamber 32. The explosive pressures and heat thus generated are exhausted from chamber 32 into a vacuum reactor chamber 30 via gas turbine assembly 26. The gas turbine assembly may be of any suitable type known in the art depending of course on the power levels generated. As the hydrogen chloride gas enters the vacuum reactor chamber 30, tubes 29 generate water jets which spray into the chamber. Five hundred volumes of hydrogen chloride combine instantly with one volume of water and form hydrochloric acid. The reaction evacuates the chamber instantly, leaving hydrochloric acid in the base of the chamber. The hydrochloric acid drops via ports 40 into a sodium hydroxide-hydrochloric acid reactor 25. The sodium hydroxide is fed into reactor 25 via tube 38 from a chlorine-sodium hydroxide cell. The hydrochloric acid is mixed with the sodium hydroxide, producing water and sodium chloride. The water and sodium chloride are fed from reactor 25 to a chlorine-sodium hydroxide cell, via tube 43. The water and sodium chloride are converted into fuel and/or reactants, hydrogen and chlorine, and sodium hydroxide. The process is continuously repeated.

The heat and pressure from reactor chamber 32 provide explosive energies to drive turbine assembly 26, which in turn drives a power generator via power take off 42. The evacuation chamber 30 converts the exhaust gas, hydrogen chloride, into hydrochloric acid, creating a vacuum exhaust, increasing the efficiency of turbine assembly 26, and eliminates the necessity of atmospheric exhaust.

Refer now to FIG. 2 where there is disclosed an alternative embodiment of the solar reactor engine of the present invention. In this embodiment the housing 28 is formed of a metallic material such as in a standard gas turbine engine wherein the engine is designed for propulsion or other mobile applications. The reactants such as hydrogen and chlorine are supplied by means of storage containers or can be generated on a continuous basis. In this embodiment rather than utilizing solar energy for sustained reaction in the reaction chamber 32, the light is generated by, for example, carbon arc ignitors 44 or other high intensity light sources. As before, the light generated by the high intensity light source 44 is directed into the chamber 32 and against the conical reflector 24. The light is thus dispersed against the walls of the reaction chamber 32 to thereby sustain the combination of chlorine and hydrogen to form hydrogen chloride. The hydrogen chloride thus formed is at a high temperature and pressure level and is thereby forced through turbine blades 26 into the exhaust chamber 30. The turbine blades 26 are thereby rapidly driven with the mechanical energy thus generated coupled to a power take off 42 which may drive a mechanical means for moving a vehicle and in addition a portion of the mechanical power may be utilized to drive a generator 47. In the exhaust chamber 30, water is dispersed through tubes 29 to combine with the hydrogen chloride to form hydrochloric acid. This acid is conveyed away from the exhaust chamber 30 into a container 25. By combining the HCl with water a partial vacuum is created in the exhaust chamber 30 which assists in driving the turbine 26 because of the increased pressure differential thereacross.

Refer now to FIG. 3 which is an alternate embodiment of the solar reactor engine of the present invention. As illustrated in this embodiment more than one reactor chamber is provided with each of the reactor chambers having hydrogen and chlorine coupled thereto together with oxygen for control purposes via select valves 51 which are sequentially operated. Each of the reaction chambers 32 has light energy coupled thereto from arc ignitors 44 or from concentrated solar energy. The combustion gases hydrogen coupled through line 21 and chlorine coupled through line 22 expand through check valves 53 into an expansion chamber 52. In this arrangement initial combustion is sequentially provided by each of the reactor chambers 32, the output of which is coupled to the expansion chamber 52 thereby increasing the pressure in expansion chamber 52. As in the previous embodiments, the high pressure hydrogen chloride thus formed drives the turbine 26, which in turn powers a take off unit 42 and a generator 47.

Refer now to FIG. 4 where there is disclosed a block diagram of the solar reactor engine of the present invention wherein the solar reactor engine is formed as a part of an electrical utility power generation and storage system. The generation system is fully explained in copending U.S. patent application Ser. No. 564,087, filed Apr. 1, 1975 by the same inventors herewith. The subject matter of this application is incorporated herewith by reference. As illustrated in FIG. 4, a surplus electrical power generated during off peak demand periods is stored in a battery supply 45. This electrical energy is coupled to the chlorine sodium hydroxide electrolysis cell 14 to thereby generate chlorine and hydrogen which is coupled to the reactor chamber 32 via lines 21 and 22. As aforementioned, the output of the reactor chamber drives a turbine which in turn drives a power take off unit 42. The power take off unit 42 powers a generator 47 which generates electrical power during peak load demand periods so that in effect the electrical energy generated during off peak demand periods is recovered and utilized to provide peak load demands during periods of high power use in the utility system. In addition, the power take off unit 42 drives an oxygen compressor unit 49 which supplys oxygen to the reactor 32 via line 23 to thereby control the reaction of the hydrogen and chlorine within the reactor in a known manner. As illustrated water is coupled to the exhaust chamber 30 via line 29 with the output of the exhaust chamber being coupled to the hydrogen chloride converter unit 25. Coupled to the hydrogen chloride converter unit is sodium hydroxide from the electrolysis cell 14 via line 30a so that in the converter 25 water and NaCl is formed which is coupled back to the chlorine-sodium hydroxide electrolysis unit.

In another embodiment of the invention, the energy stored in the battery supply 45 may be provided by a portable battery unit rather than, for example, the rectified output of a utility power generator in such a circumstance if the reactor engine were made small enough and encased for example in metal such as a standard propulsion turbine engine, the system of FIG. 4 could be mounted for propulsion purposes in an aircraft, ship or in land vehicles.

While the present invention has been disclosed in connection with a preferred embodiment thereof, it should be understood that there may be other variations of the invention which fall within the spirit and scope thereof as defined by the appended claims.

Claims -- [Claims not included here]

US Patent # 4,026,112

(May 31, 1977)

Solar Reactor Engine

Robert L. Scragg

Abstract -- A solar reactor engine is disclosed which includes a concrete or other suitable housing having a reactor chamber therein. In one embodiment, the reactor chamber is cylindrical. A solar intensifier, such as a parabolic reflector, is mounted on top of the reactor housing. The parabolic reflector collects and intensifies solar rays and guides them down through a solar sight glass, mounted on top of the housing, into the reactor chamber. The concentrated beam of light is directed onto a reflector cone within the reactor chamber which disperses solar rays throughout the chamber. Hydrogen and chlorine are conducted into the reactor chamber and react with

controlled explosive violence when exposed to the solar rays. Atmospheric oxygen is used as a control medium to regulate the energy given off by the reaction of the hydrogen and chlorine in the presence of solar energy. The heat and pressure thus formed are utilized to drive a turbine, the output of which is utilized to drive a suitable utilization device. In another embodiment of the invention, the solar reactor engine is housed in a metal or other suitable housing so that the reactor engine can be utilized for propulsion or mobile applications.

Current U.S. Class: 60/641.8; 60/673; 126/263.01 Intern'l Class: F03G 007/02
Field of Search: 60/641,673 126/270,271,263

Background of the Invention

This invention is a continuation-in-part of copending application Ser. No. 588,888, filed June 20, 1975, which in turn is a continuation-in-part of copending application Ser. No. 564,087, filed Apr. 1, 1975, and titled Solar Reactor Steam Generator Method and Apparatus. The subject matter of these applications is incorporated herein by reference thereto.

Description

This invention relates to reactors and turbines and more particularly is related to solar reactors and gas turbines which utilize the controlled energy developed by the combination of hydrogen and chlorine in the presence of solar energy to convert this photo-chemical energy into mechanical and/or electrical power.

In the process of converting energy into mechanical and electrical power, many forms of primary movers, i.e. energy converters, have been utilized. The most widely used converters are gasoline and diesel engines, jet engines and gas turbine engines. All of these engines convert fossil fuel into kinetic energy which is then converted directly to mechanical power. Another example of a common converter commonly used in the art is the steam boiler. The steam boiler converts fossil energy into kinetic energy which is then converted to mechanical power by means of steam turbines. It is a characteristic of all of the above-identified energy converters that their efficiency does not exceed 40%. Thus, only 40% of the input BTUs in fuel is converted to output horsepower. Further, each of the aforementioned engines operates with detrimental environmental effects; and all are dependent upon fossil fuels or refined fossil fuels which require tremendous capital investments for recovery, refining and distribution.

It therefore is an object of this invention to provide a method for converting photo-chemical energy to mechanical and/or electrical power in sufficient quantity for direct or supplemental utility operation.

It is another object of this invention to provide a method of utilizing fuels and reactants, which can be produced by electrolysis cells and stored wherever electrical power is available, whether it be in stored or generated capacity.

It is yet another object of this invention to provide a method of utilizing the explosive energies of reactant gases such as hydrogen and chlorine to drive a gas turbine or any engine that requires explosive gases for expansion of pistons or rotors.

It is another object of this invention to provide a method of evacuating or scrubbing exhaust gases to thereby reduce the heat and back pressure of an internal combustion engine resulting in higher efficiencies for the engine.

It is yet another object of this invention to provide a method of generating power in the form of a prime mover or electrical generator which generates no harmful emissions.

It is yet another object of this invention to provide a method of generating power in the form of a prime mover or electrical generator which is more efficient than existing energy converters.

Another object of this invention is to provide a method of generating power in the form of a prime mover or electrical generator that does not utilize fossil or nuclear fuels which may potentially pollute or otherwise harm the environment about the generator.

Short Statement of the Invention

Accordingly the present invention is related to a solar reactor engine which includes a solar reactor chamber having means for controllably coupling chlorine and hydrogen thereto. A parabolic reflector or other suitable focusing means is positioned with respect to the reactor chamber and is controlled by an automated azimuth tracker. The parabolic reflector concentrates the solar rays into an intense focal point reflector which reflects the solar beam via a series of reflectors through a solar sight glass and into the reactor chamber. The beam of light passes through the reactor chamber and onto the surface of a conical reflector at the base of the chamber which disperses the solar rays throughout the chamber. The hydrogen and chlorine coupled to the reactor chamber exothermicly react to generate hydrogen chloride at high temperature and pressure level. Atmospheric oxygen is used as a control mechanism to regulate the energy given off by the reaction of the hydrogen chloride in the presence of solar energy. A turbine is positioned on at least a portion of at least one wall of the reactor chamber with the pressurized hydrogen chloride driving the turbine. An exhaust chamber is positioned on the opposite side of the turbine from the reactor chamber wherein the hydrogen chloride is converted to hydrochloric acid to thereby form a partial vacuum in the exhaust chamber. The partial vacuum has the effect of creating an increased pressure differential across the turbine to thereby increase the efficiency of operation of the turbine. The hydrochloric acid is conveyed away from the exhaust chamber.

In another aspect of the invention, batteries are provided for generating an electrical current which is coupled to a chlorine-sodium hydroxide electrolysis cell. The electrical current coupled to the electrolysis cell causes the generation of chlorine and hydrogen therein which is coupled to the solar reactor. At the output of the exhaust chamber of the reactor engine the hydrochloric acid is reacted with sodium hydroxide to thereby produce water and sodium chloride. The water and sodium chloride are coupled back to the chlorine and sodium hydroxide electrolysis cell so that the cycle is continuously repeated.

Brief Description of the Drawings

Other objects, features and advantages of the invention will become more fully understood from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIG. 1 is a simplified section view taken in elevation of a preferred embodiment of the solar reactor engine of the present invention;

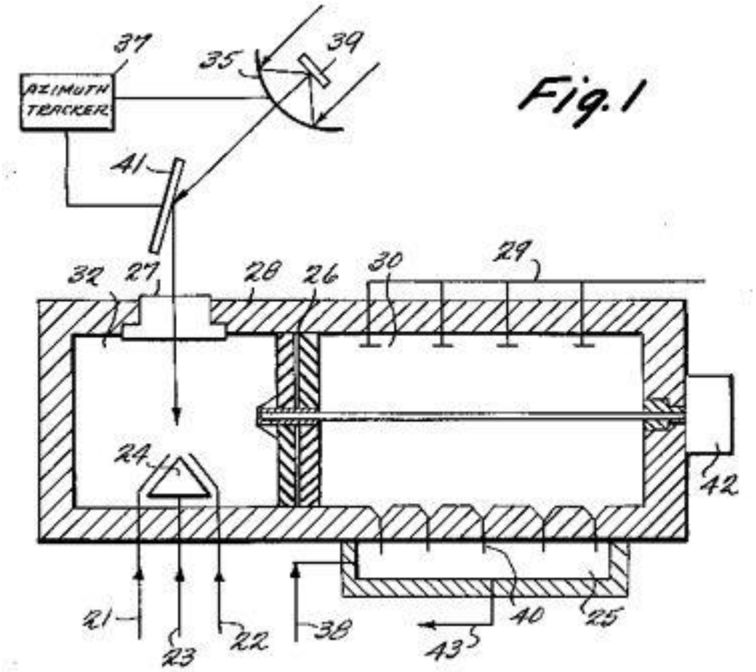


FIG. 2 is a simplified section view taken in elevation of another embodiment of the solar reactor engine of the present invention;

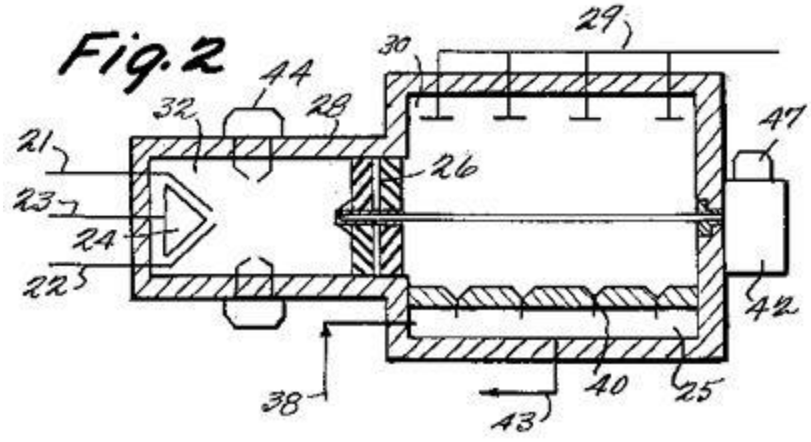


FIG. 3 is a simplified section view taken in elevation which illustrates another embodiment of the solar reactor engine of the present invention;

Fig. 3

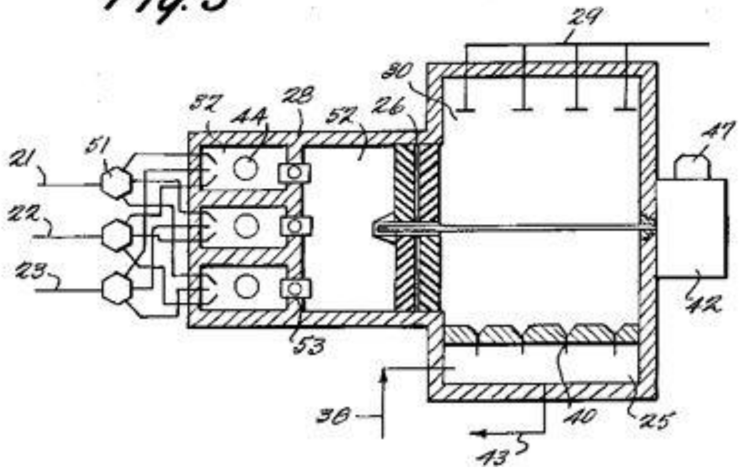


FIG. 4 is a block diagram of the solar reactor engine illustrating the reactant producing process and power producing process capable of operation in a mobile or stationary configuration using storage batteries and water; and

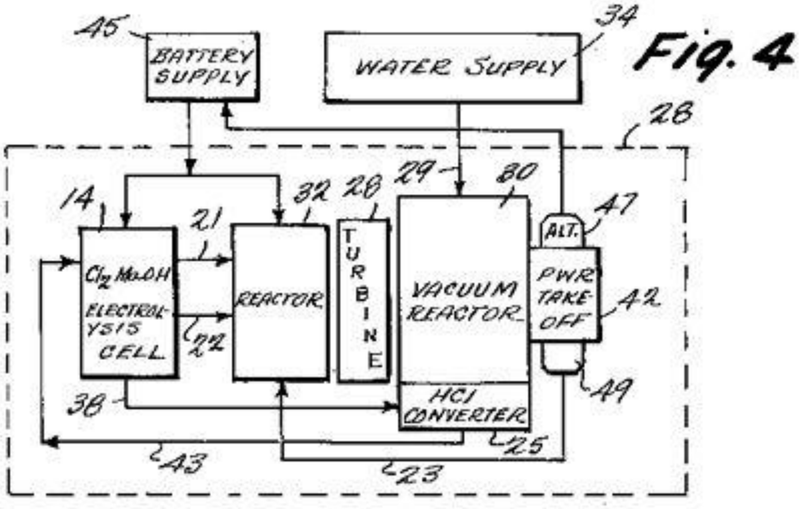
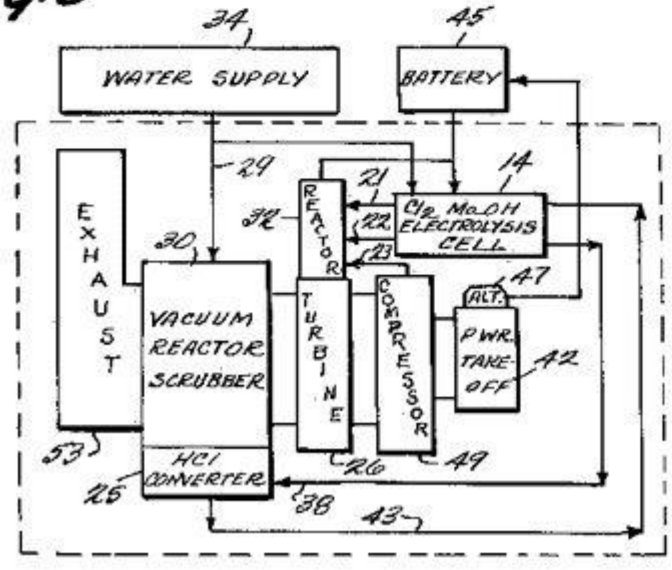


FIG. 5 is a block diagram of an alternate embodiment of the solar reactor engine of the present invention.

Fig. 5



Detailed Description of the Embodiments

Throughout the detailed description of the embodiments of the present invention, like numerals will correspond to like elements in the Figures.

Refer now to FIG. 1 where there is disclosed a simplified section view of one embodiment of the solar reactor engine of the present invention. Fuel and/or reactants are fed into a solar reactor chamber 32 via tubes 21 and 22. In the preferred embodiment chlorine is fed into the reactor via tube 22 and hydrogen via tube 21 at controlled rates. Atmospheric oxygen is fed into chamber 32 via tube 23 under the base of a conical reflector 24.

Solar rays are concentrated and intensified by an azimuth tracking parabolic reflector system such as is well known in the art. Solar radiation is received by a parabolic reflector 35 which tracks the sun by means of a conventional azimuth tracker 37. The parabolic reflector concentrates the solar rays into a focal point reflector 39 which reflects the intense solar beam via reflector 41 through a solar sight glass 27 which may, for example, be of the convex or double convex lens type. The intensified solar rays are directed downward through solar sight glass 27, which is encased within the reactor chamber wall 28, and onto the surface of conical reflector 24, which disperses the intense solar rays onto the surface of the reactor walls. It should also be understood that reflector 24 can have a flat or convex shape if desired. Hydrogen and chlorine gas emitted into the chamber 32 via tubes 21 and 22, respectively, react with controlled explosive violence creating hydrogen chloride gas and intense heat and pressure within chamber 32. The explosive pressures and heat thus generated are exhausted from chamber 32 into a vacuum reactor chamber 30 via gas turbine assembly 26. The atmospheric oxygen coupled to the chamber via line 20 serves as a control medium to regulate the energy given off by the reaction of the hydrogen and chloride in the presence of the solar energy. The gas turbine assembly may be of any suitable type known in the art depending of course on the power levels generated. As the hydrogen chloride gas enters the vacuum reactor chamber 30, tubes 29 generate water jets which spray into the chamber. Five hundred volumes of hydrogen chloride combine instantly with one volume of water and form hydrochloric acid. The reaction evacuates the chamber instantly, leaving hydrochloric acid in the base of the chamber. The hydrochloric acid drops via ports 40 into a sodium hydroxide-hydrochloric acid reactor 25. The sodium hydroxide is fed into reactor 25 via tube 38 from a chlorine-sodium hydroxide cell. The hydrochloric acid is mixed with the sodium hydroxide, producing water and sodium chloride. The water and sodium chloride are fed from reactor 25 to a chlorine-sodium hydroxide cell, via tube 43. The water and sodium chloride are converted into fuel and/or reactants, hydrogen and chlorine, and sodium hydroxide. The process is continuously repeated.

The heat and pressure from reactor chamber 32 provide explosive energies to drive turbine assembly 26, which in turn drives a power generator via power take off 42. The evacuation chamber 30 converts the exhaust gas, hydrogen chloride, into hydrochloric acid, creating a vacuum exhaust, increasing the efficiency of turbine assembly 26, and eliminates the necessity of atmospheric exhaust.

Refer now to FIG. 2 where there is disclosed an alternative embodiment of the solar reactor engine of the present invention. In this embodiment the housing 28 is formed of a metallic material such as in a standard gas turbine engine wherein the engine is designed for propulsion or other mobile applications. The reactants such as hydrogen and chlorine are supplied by means of storage containers or can be generated on a continuous basis. In this embodiment rather than utilizing solar energy for sustained reaction in the reaction chamber 32, the light is generated by, for example, carbon arc ignitors 44 and other high intensity light sources. As before, the light generated by the high intensity light source 44 is directed into the chamber 32 and against the conical reflector 24. The light is thus dispersed against the walls of the reaction chamber 32 to thereby sustain the combination of chlorine and hydrogen to form hydrogen chloride. The hydrogen chloride thus formed is at a high temperature and pressure level and is thereby forced through turbine blades 26 into the exhaust chamber 30. The turbine blades 26 are thereby rapidly driven with the mechanical energy thus generated coupled to a power take off 42 which may drive a mechanical means for moving a vehicle and in addition a portion of the mechanical power may be utilized to drive a generator 47. In the exhaust chamber 30, water is dispersed through tubes 29 to combine with the hydrogen chloride to form hydrochloric acid. This acid is conveyed away from the exhaust chamber 30 into a container 25. By combining the HCl with water a partial vaccum is created in the exhaust chamber 30 which assists in driving the turbine 26 because of the increased pressure differential thereacross.

Refer now to FIG. 3 which is an alternate embodiment of the solar reactor engine of the present invention. As illustrated in this embodiment more than one reactor chamber is provided with each of the reactor chambers having hydrogen and chlorine coupled thereto together with atmospheric oxygen for control purposes via select valves 51 which are sequentially operated. Each of the reaction chambers 32 has light energy coupled thereto from arc ignitors 44 or from concentrated solar energy. The combustion gases, hydrogen coupled through line 21 and chlorine coupled through line 22, expand through check valves 53 into an expansion chamber 52. In this arrangement initial combustion is sequentially provided by each of the reactor chambers 32, the output of which is coupled to the expansion chamber 52 thereby increasing the volume in expansion chamber 52. As in the previous embodiments, the high pressure hydrogen chloride thus formed drives the turbine 26, which in turn powers a take off unit 42 and a generator 47.

Refer now to FIG. 4 where there is disclosed a block diagram of the solar reactor engine of the present invention wherein the solar reactor engine is formed as a part of an electrical utility power generation and storage system. The generation system is fully explained in copending U.S. patent application Ser. No. 564,087, filed Apr. 1, 1975 by the same inventors herewith. The subject matter of that application is incorporated herewith by reference. As illustrated in FIG. 4, surplus electrical power generated during off peak demand periods is coupled to the chlorine-sodium hydroxide electrolysis cell 14 to therey generate chlorine and hydrogen which is stored, then coupled to the reactor chamber 32 via lines 21 and 22 during peak demand periods. As aforementioned, the output of the reactor chamber drives a turbine which in turn drives a power take off unit 42. The power take off unit 42 powers a generator 47 which generates electrical power during peak load demand periods so that in effect the electrical energy generated during off peak demand periods is recovered and utilized to provide peak load demands during periods of high power use in the utility system. In addition, the power take off unit 42 drives an atmospheric compressor unit 49 which supplies atmospheric oxygen to the reactor 32 via line 23 to thereby control the reaction of the hydrogen and chlorine within the reactor in a known manner. As illustrated water is coupled to the exhaust chamber 30 via line 29 with the output of the exhaust chamber being coupled to the hydrochloric acid converter unit 25. Coupled to the hydrochloric acid converter unit is sodium hydroxide from the electrolysis cell 14 via line 30a so that in the converter 25 water and NaCl is formed which is coupled back to the chlorine-sodium hydroxide electrolysis unit.

In another embodiment of the invention, the energy stored in the battery supply 45 may be provided by a portable battery unit rather than, for example, the rectified output of a utility power generator. In such a circumstance, if the reactor engine was made small enough and encased for example in metal such as a standard propulsion turbine engine, the system of FIG. 4 could be mounted for propulsion purposes in an aircraft, ship or in land vehicles.

Refer now to FIG. 5 where there is disclosed a block diagram of an alternate embodiment of the solar reactor engine of the present invention. As illustrated in this embodiment, the atmospheric compressor 49 is an integral component of a gas turbine engine. The compressor 49 compresses a large volume of air which is heated in the compression process. The heated air (atmospheric oxygen) is injected into the solar reactor chamber where it is further heated and expanded by the exothermic reaction between the hydrogen and chlorine when exposed to intense light. The expanded air along with the hydrogen chloride, which is generated with explosive pressures and heats, is exhausted from chamber 32 into a vacuum reactor scrubber 30 via gas turbine assembly 26. The gas turbine assembly may be of any suitable type known in the art. As the hydrogen chloride gas enters the vacuum reactor scrubber 30, tubes 29 convey water to water jets (not shown) which spray water into the chamber. The hydrogen chloride combines instantly with the water and forms hydrochloric acid. The atmospheric gases are partially cooled by the water. The reaction partially evacuates the chamber, leaving hydrochloric acid in the base of the chamber and passing cooled atmospheric gases into the atmosphere via flue exhaust chamber 53. The hydrochloric acid drops via ports into a sodium hydroxide-hydrochloric acid reactor 25. The sodium hydroxide is fed into reactor 25 via tube 38 from a chlorine-sodium hydroxide cell. The hydrochloric acid is mixed with the sodium hydroxide, producing water and sodium chloride. The water and sodium chloride are fed from reactor 25 to a chlorine-sodium hydroxide cell, via tube 43. The water and sodium chloride are converted into fuel and/or reactants, hydrogen and chlorine, and sodium hydroxide. The process is continuously repeated.

The heated air and pressure from compressor 49 and reactor chamber 32 provide explosive energies to drive turbine assembly 26, which in turn drives a power generator via power take off 42. The evacuation scrubber chamber 30 cools the exhaust air (atmospheric gases) and converts the hydrogen chloride into hydrochloric acid, creating a partial vacuum exhaust and increasing the efficiency of turbine assembly 26.

While the present invention has been disclosed in connection with a preferred embodiment thereof, it should be understood that there may be other variations of the invention which fall within the spirit and scope thereof as defined by the appended claims.

Claims ~ [Not included here]

US Patent # 4,070,861

(January 31, 1978)

Solar Reactor Combustion Chamber

Robert L. Scragg

Abstract --- A solar reactor combustion chamber is disclosed which includes a concrete or other suitable housing having a reactor chamber and a combustion chamber therein. A solar intensifier, such as a parabolic reflector, is mounted on top of the reactor housing. The parabolic reflector collects and intensifies solar rays and guides them through a solar sight glass, mounted on top of the housing, into the reactor chamber. The concentrated beam of light is directed onto a light disperser within the reactor chamber which disperses solar rays throughout the chamber. Molecular hydrogen and chlorine is conducted into the reactor chamber wherein in the presence of light the chlorine molecules expand into atomic chlorine. The chlorine and hydrogen molecules are forced into the combustion chamber together with oxygen wherein the chlorine and hydrogen react with controlled explosive violence to form HCl. The heat and pressure thus formed are utilized to heat or drive suitable utilization devices, such as turbines or pistons.

Inventors: Scragg; Robert L. (Miami, FL); Parker; Alfred B. (Miami, FL)

Current U.S. Class: 60/641.8; 60/39.12; 60/39.465; 60/649; 126/263.01; 126/681; 126/690; 422/186

Intern'l Class: F03G 007/02

Background of the Invention

This application is a continuation-in-part of copending application Ser. No. 657,383 filed Feb. 10, 1976, titled SOLAR REACTOR ENGINE now U.S. Pat. No. 4,026,112, which, in turn, is a continuation-in-part of copending application Ser. No. 588,888, filed June 20, 1975, and titled SOLAR REACTOR ENGINE now U.S. Pat. No. 4,024,715, which, in turn, is a continuation-in-part of copending application Ser. No. 564,087, filed Apr. 1, 1975, now U.S. Pat. No. 3,998,205 entitled SOLAR REACTOR STEAM GENERATOR METHOD AND APPARATUS. Each of these applications are incorporated herein by reference thereto.

Description

This invention relates to reactors and combustion chambers and, more particularly, is related to solar reactors and combustion chambers which utilize molecular hydrogen and chlorine gases in the presence of solar or artificial light energy to produce atomic hydrogen and chlorine which are exothermically combined in the presence of atmospheric oxygen to produce heat energy which is converted into chemical or mechanical energy for propulsion and/or for the generation of electrical power.

In the process of converting fossil fuels into mechanical or chemical energy for the purpose of generating mechanical or electrical power, two types of combustion processes are known, i.e., external and internal combustion. External combustion is generally accomplished by burning a fuel in an open combustion chamber resulting in a flame which is typically supported by atmospheric oxygen. Internal combustion is typically accomplished by introducing a fuel and a fixed amount of oxygen or other suitable oxidizing agent within an enclosed combustion chamber. The fuel and oxidizing agent are ignited which results in a rapid burning or explosion within the chamber. Both the internal and external combustion properties are generally sustained by an open flame or an electrical arc. Both the internal and external combustion processes result in a typically low efficiency conversion of energy. Further, both methods produce harmful exhaust emissions and pollutants and all methods of converting fossil fuels into energy are dependent upon a limited and increasingly expensive supply of such fuels.

It, therefore, is an object of this invention to provide a method and apparatus for generating energy by means of a non-fossil fuel.

It is another object of this invention to provide an energy-generation system wherein products of combustion formed therein can be totally cleansed of emissions and pollutants which are harmful to the atmosphere and the environment.

It is yet another object of this invention to provide a reactor combustion chamber wherein an exothermic reaction is supported by solar and/or artificial light.

It is still another object of this invention to provide an energy-generation system wherein the products of combustion are recycled to continuously support an exothermic reaction therein.

Short Statement of the Invention

Accordingly, the present invention relates to a solar reactor combustion system which includes a solar reactor chamber having means for controllably coupling molecular chlorine and hydrogen thereto and a combustion chamber having means for controllably coupling atomic chlorine, hydrogen, and atmospheric oxygen thereto. A parabolic reflector, or other suitable focusing means, is positioned with respect to the reactor chamber and is controlled to follow the sun by means of an automated azimuth tracker. The parabolic reflector concentrates solar rays onto a focal point reflector which reflects the solar beam via a series of reflectors through a solar sight glass and into the reactor chamber. The beam of light passes through the reactor chamber and onto the surface of a light dispersal means such as a conical reflector valve at the base of the reactor chamber. Thus, the solar rays are dispersed throughout the reactor chamber. The chlorine gas molecules, coupled to the reactor chamber, are split into ionized chlorine atoms by the solar rays. The resulting hydrogen and chlorine cause an increase in the pressure of the reactor chamber, thereby forcing the chlorine atoms and hydrogen into the combustion chamber. In the combustion chamber, the chlorine and hydrogen react in the presence of atmospheric oxygen with controlled explosive violence. The hot gases formed from the explosion can be utilized to provide mechanical and/or electrical power. As an example, the hot gases can be utilized to heat a boiler, compress a piston, or drive a turbine.

Brief Description of the Drawings

Other objects, features and advantages of the invention will become more fully apparent from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIG. 1 is a section view taken in elevation of one embodiment of the solar reactor combustion chamber;

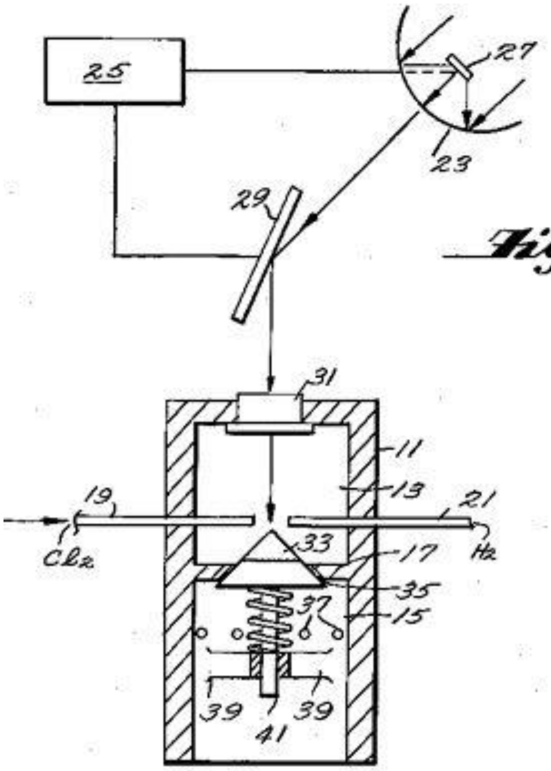


Fig.1.

FIG. 2 is a section view taken in elevation of another embodiment of the solar reactor combustion chamber;

Fig.2

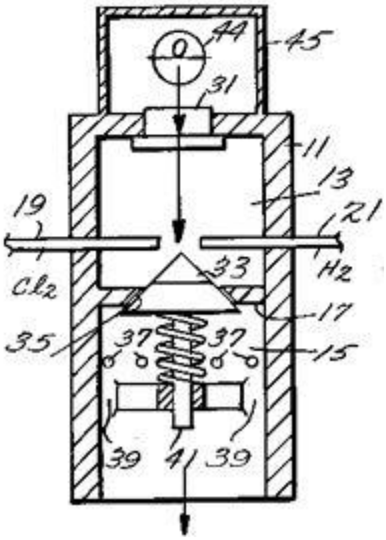


FIG. 3 is a section view taken in elevation of the solar reactor combustion chamber utilized as a steam generator;

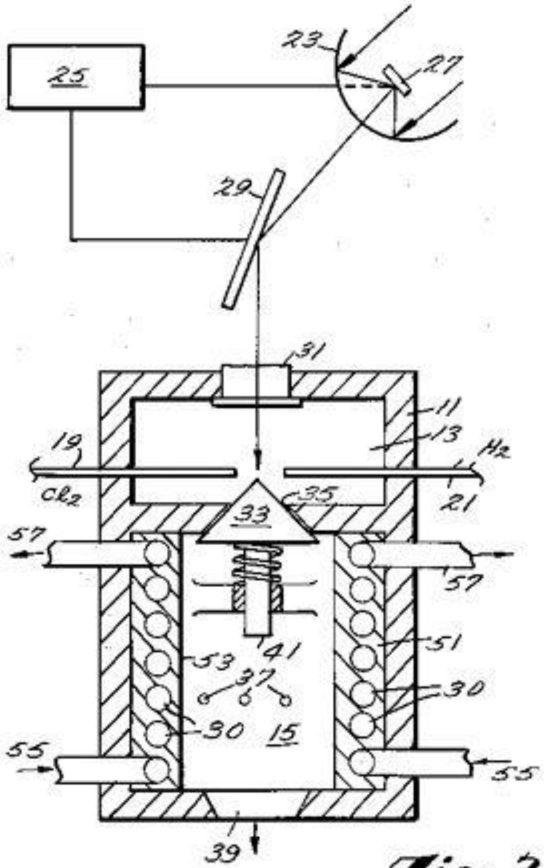


Fig.3.

FIG. 4 is a section view taken in elevation of a solar reactor combustion chamber utilized as a turbine drive means;

Fig. 4.

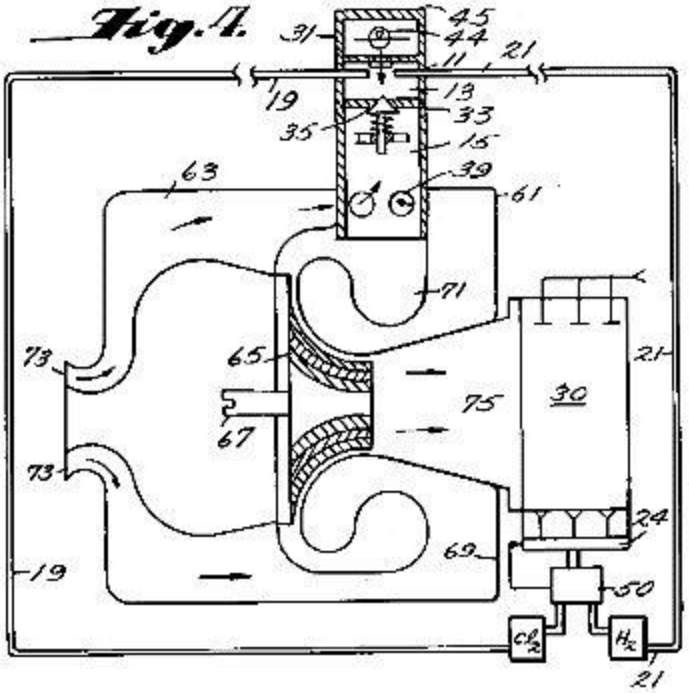


FIG. 5 is a schematic illustration of an alternate embodiment of the solar reactor combustion chamber utilized as a turbine drive means;

Fig. 5.

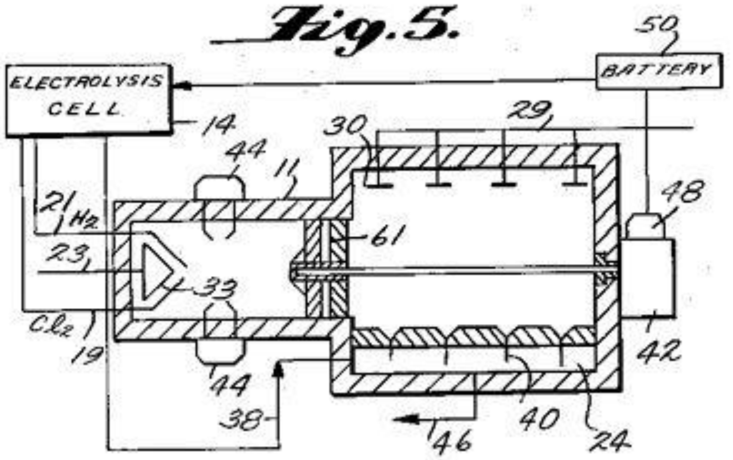


FIG. 6 is a section view taken in elevation of a solar reactor combustion chamber utilized as a piston engine drive means;

Fig. 6.

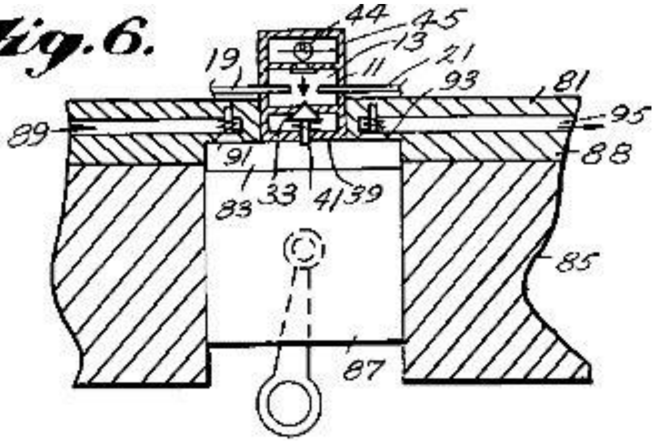
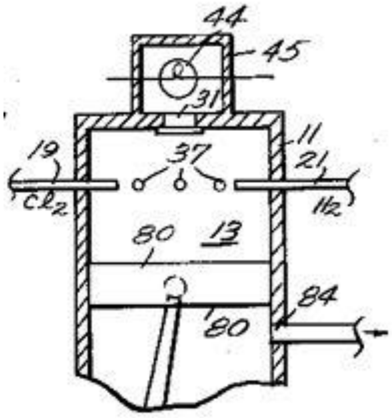


FIG. 7 is a simplified section view taken in elevation of the solar reactor combustion chamber utilized to drive a single cycle piston engine.

Fig. 7.



Detailed Description of the Preferred Embodiments

Throughout the detailed description of the embodiments of the present invention, like numerals will correspond to like elements in the figures.

Refer now to FIG. 1 where there is disclosed a simplified section view of one embodiment of the solar reactor combustion chamber of the present invention. The solar reactor combustion chamber includes a housing 11 which may, for example, be formed of reinforced concrete or other materials capable of withstanding very high pressure levels. The housing is divided into a reaction chamber 13 and a combustion chamber 15, by means of a wall 17. Fuel or reactants are fed into the reactor chamber 13, via tubes 19 and 21, respectively. In the preferred embodiment, chlorine is fed into the reactor via tube 19 and hydrogen is fed into the reactor chamber via tube 21 at controlled rates.

In one embodiment of the invention, solar rays are concentrated and intensified by an azimuth tracking parabolic reflector system of the type well known in the art. Solar radiation is directed by parabolic reflector 23 which tracks the sun by means of the azimuth tracker 25. The parabolic reflector concentrates the solar rays onto a focal point reflector 27 which reflects the intense solar beam via reflector 29 through a solar sight glass 31. The intensified solar rays are directed downwardly through the solar sight glass 31 which is encased within the walls of the housing 11 and onto the surface of a conical reflector valve 33, which disperses the intense solar rays onto the surface of the reactor walls. It should be understood that the reflector 33 can have a flat or convex shape, if desired. Of primary importance, however, is the fact that the solar rays must be dispersed throughout the reaction chamber 13 in order to provide for the most efficient operation of the method and apparatus of the present invention.

As mentioned above, molecular chlorine and hydrogen gas is emitted into the chamber 13 via tubes 19 and 21, respectively. When the chlorine becomes exposed to the solar radiation within the chamber, the chlorine expands to form ionic atomic chlorine within the chamber. The chlorine and hydrogen are at least partially combined in chamber 13 to form HCl and a large amount of heat energy. Accordingly, the pressure level within the chamber 13 is substantially increased. The hydrogen, chlorine and HCl are forced through valve port 35 defined by the conical reflector 13 and the wall 17. The gas is passed into the combustion chamber 15. Also, coupled to the combustion chamber 15 is atmospheric oxygen via a plurality of openings 37. The hydrogen and chlorine combine in the presence of the atmospheric oxygen, with controlled explosive violence, to thereby create hydrogen chloride gas and intense heat and pressure within the chamber 15. The explosive pressures and heat thus generated are utilized to perform work by generating steam, driving a turbine and/or driving a piston, as will become more fully apparent hereinbelow. The high pressure gases generated within the chamber 15 are conducted from the chamber 15 by means of ports 39, or may be conducted from the chamber in a particular manner, as set out more fully in connection with discussion of FIGS. 4 and 5.

As will become apparent from FIG. 1, the conical reflector 33 is fixedly secured to a reciprocating support member 41 and is spring-biased to close the port 35. However, when the pressure within chamber 13 increases, at a predetermined level, the port 35 is opened by forcing the concical reflector 33 downwardly. Subsequently, upon the occurrence of a controlled explosion in the combustion chamber 15, the conical reflector is driven upwardly to close the port 35. This pulsating expansion and combustion process occurs repeatedly as the chlorine and hydrogen molecules are split into atomic hydrogen and chlorine and, subsequently, are combined to form HCl in the combustion chamber 15.

As an alternative, the conical reflector 33 can be fixedly positioned to provide a continuously open port 35 or it can be controlled by a cam to open the port 35 at preselected time intervals.

Refer now to FIG. 2 where there is disclosed an alternative embodiment of the solar reactor combustion chamber of the present invention. In this embodiment, the housing 11 is formed of a metallic material such as in a standard internal combustion engine wherein the engine is designed for propelling a vehicle or for other similar applications. In order to minimize corrosion, the internal walls of the housing may be formed of an impervious carbonaceous material such as "KT" Silicon Carbide which has excellent thermal shock characteristics. In this embodiment, rather than utilizing solar energy for splitting the molecular chlorine into atomic chlorine, as in the embodiment of FIG. 1, light is generated by, for example, a photographic projection lamp 44, or other suitable high-intensity light source. The light source is housed in a chamber 45, preferably having reflector walls therein so that substantially all the light generated by the source 44 is eventually directed downwardly through the solar sight glass 31 into the reaction chamber 13. The structure of the solar reactor combustion chamber is otherwise similar to that of FIG. 1 and is for the purpose of providing a means for efficiently and economically generating energy.

Refer now to FIG. 3 where there is disclosed an embodiment of the solar reactor combustion chamber utilized for the purpose of generating steam. The solar reactor combustion chamber is similar to that illustrated in FIG. 1. However, carbonaceous blocks 51 are positioned along at least two internal walls of the combustion chamber 15. The carbonaceous blocks, preferably consisting of "KT" Silicon Carbide, manufactured by the Carborundum Corporation, have relatively large side surface areas 53 and a relatively small or narrow depth dimension, with each of the blocks being fixedly positioned against the side walls of the housing 11 of the combustion chamber 15. A carbonaceous block may be formed of any suitable low permeability impervious graphite or carbon material but, as aforementioned, in a preferred embodiment is formed of "KT" Silicon Carbide. Such a block can operate at working temperatures of up to 3,000.degree. F. in an oxidizing atmosphere and has a thermal conductivity in excess of 700 BTU 1 hr./sq.ft./.degree. F./in. In addition, "KT" Silicon Carbide is impermeable, has excellent thermal shock characteristics, and can contain liquid or gas at pressures in excess of 2000 psig.

As illustrated, channel 30 is formed in each of the blocks 51, with the channel 30 having a grid structure so that the fluid or gas passing through the channel is exposed to a maximum of the heat energy absorbed by the carbanaceous block.

In operation, a liquid or vapor such as water or steam is fed into the channel 30 at the input 55 thereto. The fluid passes upwardly through the blocks 51 and out of the ports 57. In the meantime, heat from the combustion chamber 15 is transferred to the carbanaceous blocks 51 by conduction, convection and radiation. The energy is efficiently absorbed by the carbanaceous block and is converted into heat energy. This heat energy is, in turn, transferred to the fluid passing through the channels 30. As the fluid heats up, it begins to expand, rise in temperature, and increase in velocity. As the fluid travels upward in the channels 30, the fluid absorbs more of the latent heat absorbed by the carbonaceous block and continues its expansion until it reaches a desired heat and pressure level and is exhausted through the outlet ports 57. The resulting high temperature fluid can be utilized to drive turbines or power other suitable mechanisms. In the meantime, the exhaust gases from the combustion chamber 13 are exhausted via outlet port 39.

Refer now to FIG. 4 where there is disclosed an alternate embodiment of the solar reactor combustion chamber of the present invention utilized to drive a turbine. In this embodiment, at least one reactor-combustion housing 11 is fixedly secured to a turbine 61 which includes a plenum chamber 63, a turbine rotor 65, mounted on a shaft 67, and a turbine housing 69 which defines therein a torus ring assembly 71, which guides the hot exhaust gases from the combustion chamber 15 into the turbine blades 65 of turbine 61. Thus, in operation atmospheric oxygen enters plenum chamber 65 via an annular port 73. The oxygen passes into the combustion chamber 15 of the reactor combustion system 11 to thereby control the formation of hydrogen chloride therein. The hot expanding exhaust products are forced outwardly through the bottom of chamber 15 into the torus ring 71 defined by the turbine housing 69. The hot gases are then forced radially inwardly toward the turbine rotor 65 to cause the turbine rotor to rapidly rotate in response thereto. The exhuast gases are then forced from the turbine out through port 75 into a scrubber chamber 30. The scrubber chamber receives water into which the HCl dissolves to form hydrochloric acid which falls to the bottom of the scrubber chamber and into container 24. The remaining gases are exhausted to the atmosphere. Sodium hydroxide is coupled to the container 24 via line 38 to thereby convert the sodium hydroxide to water and sodium chloride. The water and sodium chloride are fed to the chlorine-sodium hydroxide electrolysis cell 50. The output of the electrolysis cell in the form of chlorine and hydrogen is supplied to chamber 13 via lines 19 and 21, respectively. Thus, the sodium and chlorine are continuously recycled to thereby substantially reduce the cost of fuel over that required in conventional fossil fuel powered turbine generators. Furthermore, the emission products exhausted to atmosphere are primarily water and the elements found in the atmosphere. Accordingly, a clean burning, efficient turbine engine is provided which is relatively inexpensive to operate. While in the embodiment illustrated in FIG. 4, only one reaction combustion chamber is illustrated, it should be understood that a plurality of such reaction combustion chambers can be positioned about the outside periphery of the turbine housing 69 to provide a more uniform distribution of the high velocity exhaust gases generated in the reaction chamber 15.

Refer now to FIG. 5 where there is disclosed in schematic form an alternative embodiment of the solar reactor engine of the present invention. In this embodiment the housing 11 is formed of a metallic material such as in a standard gas turbine engine wherein the engine is designed for propulsion or other mobile applications. In order to reduce corrosion the inner walls of the reactor may be lined with an impervious carbonaceous material. The reactants, hydrogen and chlorine, are supplied to the reactor housing 11 by means of lines 21 and 19, respectively. The hydrogen and chlorine can be provided by means of storage containers (not shown) or can be generated on a continuous basis. Oxygen, preferably in atmospheric form, is supplied to chamber 15 by means of line 38 for the purpose of controlling the reaction of the hydrogen with the chlorine. In this embodiment rather than utilizing solar energy for sustaining reaction in the reaction chamber 13, the light is generated by a high intensity light source 44. As before, the light generated by the high intensity light source 44 is directed into the chamber 13 and against the conical reflector 33. The light is thus dispersed against the walls of the reaction chamber 13 to thereby generate atomic chlorine. The chlorine and hydrogen are combined in chamber 15 to form hydrogen chloride. The hydrogen chloride thus formed is at a high temperature and pressure level and is thereby forced through the turbine blades of turbine 61 into the exhaust chamber 30. The turbine blades of turbine 61 are thereby rapidly driven with the mechanical energy thus generated coupled to a power take-off 42 which may drive a mechanical means for moving a vehicle and in addition a portion of the mechanical power may be utilized to drive a generator 48. The output of the generator 48 is utilized to recharge battery 50 which in turn provides DC current for energizing electrolysis cell 14. In the exhaust chamber 30, water is dispersed through tubes 28 to combine with the hydrogen chloride to form hydrochloric acid. This acid is conveyed away from the exhaust chamber 30 into a container 24. By combining the HCl with water a partial vacuum is created in the exhaust chamber 30 which assists in driving the turbine because of the increased pressure differential thereacross.

In the preferred embodiment sodium hydroxide from a chlorine-sodium hydroxide electrolysis cell 14 is supplied to the container 24 via line 38. The hydrochloric acid is mixed with the sodium hydroxide to produce water and sodium chloride. The water and sodium chloride are fed from the container 24 to the chlorine-sodium hydroxide cell via line 46. The water and sodium chloride are converted into fuel and/or reactants, hydrogen and chlorine and sodium hydroxide. This process is continuously repeated. The output from the alternator 48 is utilized to sustain electrolysis in the chlorine-sodium hydroxide electrolysis cell.

Refer now to FIG. 6 where there is disclosed an alternate embodiment of the solar reactor combustion chamber of the present invention utilized to drive a piston in a piston engine. In this embodiment, the housing 11 of the reactor combustion chamber is fixedly secured to the engine housing 81 with the exhaust port 39 from the combustion chamber 15 leading into a chamber 83 defined by the engine block 85, piston 87 and header block 88. Atmospheric oxygen is conducted into the chamber 83 via manifold 89 and intake valve 91. This oxygen mixes with the atomic chlorine and hydrogen, passing downwardly into the chamber 15 and into the chamber 83 to create a substantial expansion thereof via a controlled explosive reaction. The resulting combustion products are exhausted from the chamber 83 via exhaust valve 93 and exhaust manifold 95. Each time oxygen is permitted into the chamber 83, an explosion occurs which drives the piston 87 downwardly. Upon the return upward stroke, a conical reflector valve 33 is driven upwardly to close the port 35. At the same time, exhaust valve 93 is lowered, causing the exhaust products to pass out to exhaust manifold 95. Subsequently, the piston 87 is again moved downwardly, permitting the conical reflector valve 33 to open up to permit atomic chlorine and hydrogen to pass downwardly into the combustion chamber 15 and the chamber 83. At the same time, oxygen is coupled to the chamber 83 via intake valve 91 to control the exothermic combination of the hydrogen and chlorine. The piston is then driven downwardly to complete the cycle.

Refer now to FIG. 7 which is a simplified schematic illustration of a single cycle internal combustion engine. In this embodiment a piston 80 defines a combustion chamber 13 into which a measured amount of chlorine and hydrogen and atmospheric oxygen is supplied via lines 19, 21 and 37, respectively. The resulting controlled explosion drives the piston 80 downwardly until the top surface 82 of the piston passes the exhaust port 84 of the cylinder defined by the housing 11. The reaction gas, hydrogen chloride, as well as air egress through the port into a scrubber chamber (not shown) of similar degree to that illustrated in FIG. 6. The piston is then returned to a top dead-center position. Before the piston reaches the top dead-center position, the chlorine and hydrogen are supplied to the chamber 13. When the piston reaches top dead-center, the light source 44 is energized synchronously with movement of the piston 80 to cause the hydrogen and chlorine to combine exothermically to thereby force the piston 80 downwardly.

It should be understood the solar reactor of the present invention can be used to drive a rotary engine such as a Wankel engine as well as two and four cycle piston engines. The embodiments of FIGS. 6 and 7 merely illustrate the application of the solar reactor engine to piston engines for efficiently and economically driving these engines.

While the present invention has been disclosed in connection with a preferred embodiment thereof, it should be understood that there may be other variations of the invention which fall within the spirit and scope thereof, as defined by the appended claims.

Claims ~ [Claims not included here]

US Patent # 4,175,381

(November 27, 1979)

Electromagnetic Reactor Engine System ~ Apparatus & Method

Robert L. Scragg

Abstract -- An electromagnetic reactor engine system is disclosed wherein hydrogen and chlorine are conducted into a reactor and are combined with controlled explosive violence when exposed to electromagnetic radiation. Atmospheric oxygen is used as a control medium to regulate the energy given off by the reaction. The gases thus formed drive a turbine assembly, the output of which powers a suitable utilization device. The spent gas, hydrogen chloride, is converted to hydrochloric acid in a gas-water reactor when exhausted by the turbine. The hydrochloric acid is fed to a hydrochloric acid electrolysis cell for recycling to hydrogen and chlorine. Various means are provided for supplying the initial quantities of hydrogen and chlorine to the reactor to begin the cycle.

Current U.S. Class: 60/39.12; 60/641.13; 60/649 Intern'l Class: F02B 043/00
Field of Search: 60/39.12,39.46 R,39.46 G,203,641,651,649,671,673 123/1 A,DIG. 12,119 E

Background of the Invention

This invention is a continuation-in-part of copending application Ser. No. 692,495, filed June 3, 1976 now U.S. Pat. No. 4,070,861, entitled SOLAR REACTOR COMBUSTION CHAMBER, which, in turn, was a continuation-in-part of application Ser. No. 657,383, filed Feb. 10, 1976, entitled SOLAR REACTOR ENGINE, issued as U.S. Pat. No. 4,026,112, which, in turn, was a continuation-in-part of application Ser. No. 588,888, filed June 20, 1975, entitled SOLAR REACTOR ENGINE, issued as U.S. Pat. No. 4,024,715, which, in turn, was a continuation-in-part of application Ser. No. 564,087, filed Apr. 1, 1975, entitled SOLAR REACTOR STEAM GENERATOR METHOD AND APPARATUS, issued as U.S. Pat. No. 3,998,205. Each of these applications or patents is incorporated herein by reference thereto.

Description

This invention relates to reactors and turbine engine systems and more particularly relates to electromagnetic reactors and gas turbine engine systems which utilize the controlled energies developed by the combination of hydrogen and chlorine when exposed to electromagnetic energy. The methods of electrolyzing hydrogen and chlorine from sea water or brine, or from hydrochloric acid using less energy, and the methods and sources of obtaining the reactant gases, hydrogen and chlorine, without electrolysis are well known in the art.

In the process of converting energy into mechanical and electrical power, many forms of energy converters have been utilized. The most widely used converters are gasoline and diesel engines, jet engines and gas turbine engines. All of these engines convert fossil fuel into kinetic energy which is then converted directly to mechanical power. Another example of a converter commonly used in the art is the steam boiler. The steam boiler converts fossil energy into kinetic energy which is then converted to mechanical power by means of a steam turbine. It is a characteristic of all of the above-identified energy converters that their efficiency does not exceed 40%. Thus, only 40% of the input BTUs in fuel is converted to output horsepower. Further, each of the aforementioned engines operates with detrimental environmental effects; and all are dependent upon fossil fuels or refined fossil fuels which require tremendous capital investments for recovery, refining and distribution and none of these fuels are recyclable. Therefore, the total energy of the fuel plus the recovery and refining energy are totally consumed in one reaction.

It therefore is an object of this invention to provide a method for producing electromagnetic-chemical energy that is convertible to mechanical and/or electrical power.

It is another object of this invention to provide a method of utilizing recyclable fuels and reactants, which can be produced by electrolysis cells and stored.

It is yet another object of this invention to provide a method of utilizing reactant gases such as hydrogen chloride or hydrogen and chlorine which can be derived from natural sources.

It is another object of this invention to provide a method of converting exhaust gases back to fuel and reactants thereby resulting in higher efficiencies for the engine.

It is yet another object of this invention to provide a method of fueling a gas turbine engine system which generates no harmful emissions.

It is yet another object of this invention to provide a method of fueling a gas turbine engine system which is more efficient than existing energy converters.

Another object of this invention is to provide a method of fueling a gas turbine engine system that does not utilize fossil or nuclear fuels which may potentially pollute or otherwise harm the environment about the generator.

Short Statement of the Invention

Accordingly, the present invention is an electromagnetic reactor engine system including an electromagnetic reactor having means for controllably coupling quantities of chlorine and hydrogen thereto. The gases are initially derived either from the electrolysis of sea water or brine or from natural sources. The hydrogen and chlorine in the reactor react exothermically when exposed to electromagnetic radiation to generate hydrogen chloride at a high temperature and pressure. A turbine is positioned on at least a portion of at least one wall of the reactor so that the pressurized hydrogen chloride drives a turbine. A gas-water reactor scrubber is positioned on the opposite side of the turbine from the reactor wherein the hydrogen chloride is converted to hydrochloric acid then dropped into a receiver tank below the scrubber. The hydrochloric acid is fed to an electrolyzer which converts the hydrochloric acid to hydrogen and chlorine, thereby increasing the efficiency of the system since less energy is needed for the electrolysis of hydrochloric acid than sea water or brine.

In another aspect of the invention, batteries provide an electrical current to power the hydrochloric acid electrolysis cell. Alternatively, solar energy powers the cell.

In another aspect of the invention, bottled hydrogen and chlorine are connected directly to the solar reactor. The hydrochloric acid produced in the gas-water reactor may be either fed back to the hydrochloric acid electrolysis cell so that the cycle is continuously repeated, or stored and fed to the electrolyzer at a later time.

In another aspect of the invention, hydrogen chloride or hydrogen and chlorine from volcanic sources are connected directly to the reactor. The hydrochloric acid formed in the gas-water reactor is recycled through the electrolyzer and the resulting gases, hydrogen and chlorine, are either stored, used as supplementary reactants, or removed as by-products of the system.

Brief Description of the Drawings

Other objects, features and advantages of the invention will become more apparent and fully appreciated from the following detailed description of the various embodiments, taken in conjunction with the accompanying drawings in which:

FIG. 1 is a block diagram of the first embodiment of the electromagnetic reactor engine system;

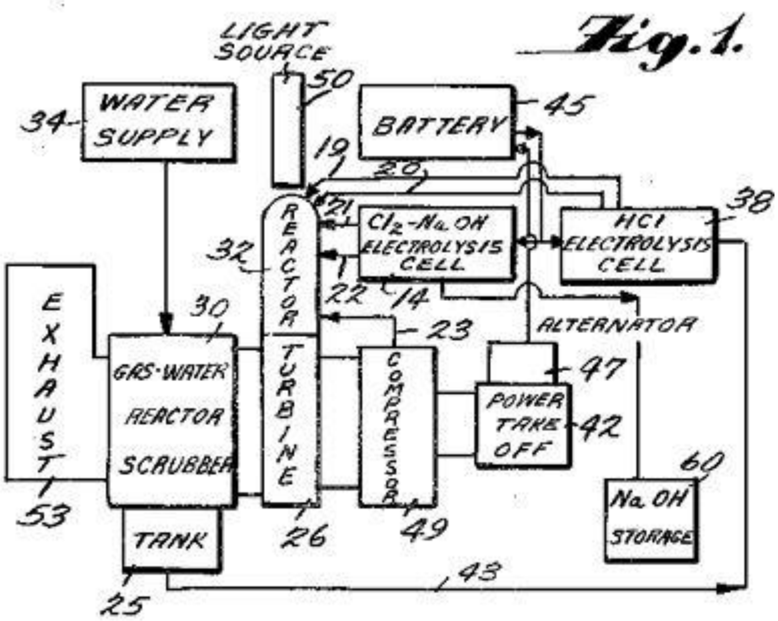


Fig. 1.

FIG. 2 is a block diagram of the second embodiment of the electromagnetic reactor engine system;

Fig. 2.

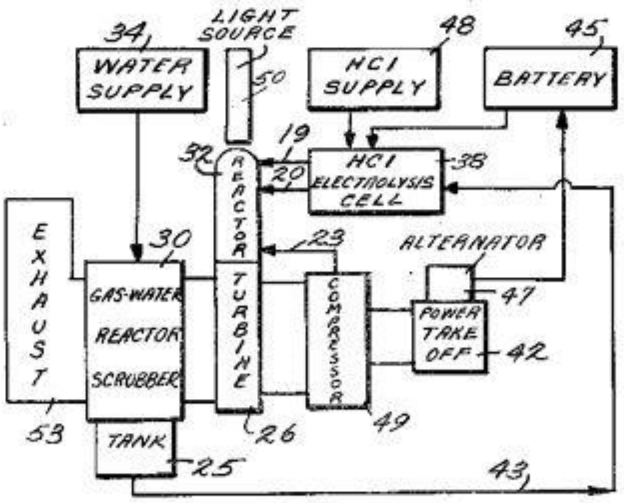


FIG. 3 is a block diagram of the third embodiment of the electromagnetic reactor engine system;

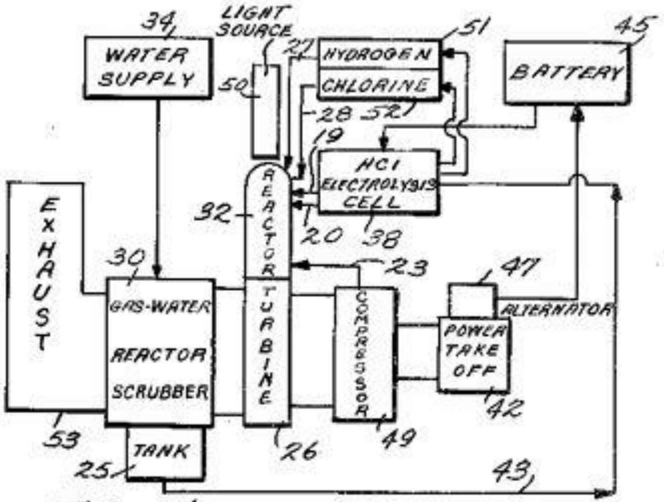


Fig. 3.

FIG. 4 is a block diagram of the fourth embodiment of the electromagnetic reactor engine system;

Fig. 4.

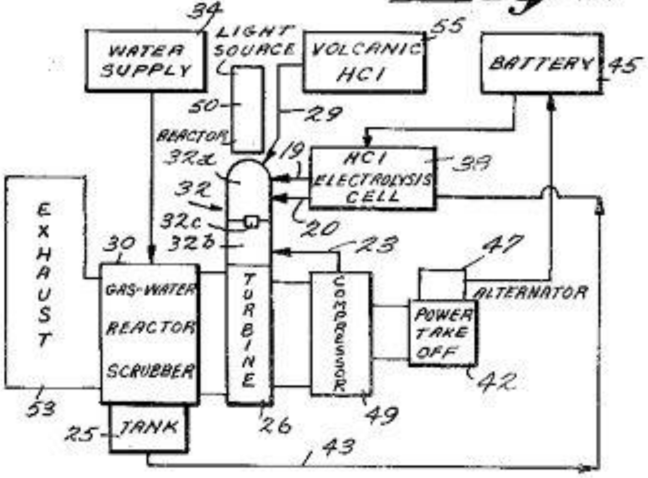
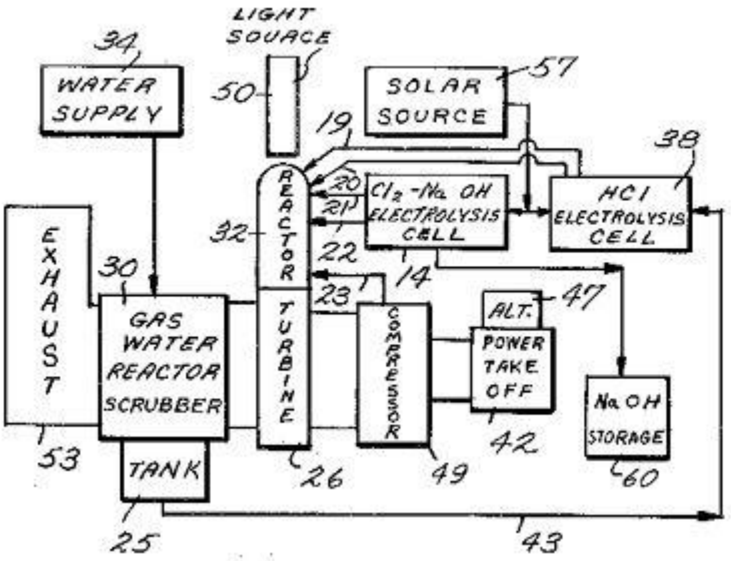


FIG. 5 is a block diagram of the fifth embodiment of the electromagnetic reactor engine system.



Detailed Description

Throughout the detailed description of the embodiments of the present invention, like numerals will correspond to like elements in the figures.

The primary generation system for this invention is fully explained in U.S. Pat. Nos. 3,998,205, 4,024,715 and 4,026,112, held by the inventors of this invention. The subject matter of these patents is incorporated herewith by reference thereto. As illustrated in FIG. 1, the first embodiment of the invention includes a chlorine-sodium hydroxide electrolysis 14 cell which is powered by battery 45. The cell 14 produces hydrogen and chlorine as the initial supply of reactants, which are conveyed to the reactor 32 via lines 21 and 22 respectively. The reactor 32 is powered by solar or artificial light source 50 which contains electromagnetic energy from infrared, through the visible, to the near and middle ultraviolet frequencies as provided by the sun. Higher frequencies may be utilized, such as upper ultraviolet, gamma, and x-ray radiation. If solar energy is being used, copending application Ser. No. 692,495 discloses a method of collecting and intensifying such light. The hydrogen and chlorine exothermically react when energized by the electromagnetic radiation in the presence of atmospheric oxygen, supplied to the reactor 32 by compressor 49 and line 23. The reactor produces hydrogen chloride at a high temperature and pressure which is used to turn the rotor of turbine 26, which in turn powers compressor 49, power take off 42, and alternator 47 which charges battery 45. The spent gases are exhausted from the turbine 26 into the gas-water reactor scrubber 30 where they are scrubbed by water from water supply 34. The hydrogen chloride gas combines with water to form hydrochloric acid which drops into tank 25. The remaining gases escape through exhaust 53 into the atmosphere. The hydrochloric acid from tank 25 is fed to hydrochloric acid electrolysis cell 38 via line 43. The chlorine-sodium hydroxide cell 14 may then be shut down since hydrogen and chlorine may be conveyed to reactor 32 through lines 19 and 20 from the hydrochloric acid electrolysis cell 38. Cell 38 requires less than half the energy required by the chlorine-sodium hydroxide cell 14, thereby leaving more energy for other work.

FIG. 2 is a block diagram of the second embodiment of the invention. The initial quantity of reactants for reactor 32 are produced in hydrochloric acid electrolysis cell 38 from hydrochloric acid in supply 48. The remainder of the system is identical to that of the first embodiment illustrated in FIG. 1. The second embodiment requires less than half the energy for start-up than the first embodiment since the hydrochloric acid cell 38 requires less energy than the chlorine-sodium hydroxide cell 14 of FIG. 1.

The third embodiment of the present invention is illustrated in FIG. 3. Again, this invention differs from the previous embodiments only in the method of providing the initial quantity of reactants for reactor 32. In this embodiment, the initial reactants are supplied from containers 51 and 52 containing hydrogen and chlorine respectively. The reactants are conveyed from containers 51 and 52 through lines 27 and 28 to the reactor 32. After the initial start-up period, hydrochloric acid electrolysis cell 38 is used to both supply reactor 32 with reactants and to recharge containers 51 and 52. This embodiment requires no start-up energy as required by chlorine-sodium hydroxide cell 14 in FIG. 1 or the hydrochloric acid cell 38 in FIG. 2.

The fourth embodiment as illustrated in FIG. 4 shows yet another method of providing the initial supply of reactants to reactor 32. In this embodiment, hydrogen chloride from a volcanic source 55 is conveyed directly to reactor 32 via line 29. This embodiment requires the use of a two-stage reactor as is disclosed in copending application Ser. No. 692,495 by the inventors of the present invention. The hydrogen chloride from source 55 is introduced into the oxygen-free combustion chamber 32a. There, the energy from electromagnetic source 50 is used to ionize the hydrogen chloride. The energy imparted by electromagnetic source 50 heats and expands the ionized gas and forces the gas through valve port 32c into combustion chamber 32b. In chamber 32b, in the presence of oxygen supplied by line 23, the ionized gases recombine to form hydrogen chloride in an exothermic reaction. The source of volcanic hydrogen chloride 55 may either be a volcano directly or a container of gases from a volcano. This embodiment requires no external start-up energy as required by the previous embodiments. The hydrochloric acid produced in the gas-water reactor scrubber 30 may either be conveyed back to hydrochloric acid electrolysis cell 38 via line 43, or stored for stand-by use, or removed from the engine system as a by-product.

The fifth embodiment of this invention as illustrated in FIG. 5 demonstrates that the electrolysis cells in any of the previous embodiments may be alternatively powered by solar source 57. The use of solar energy to power electrolysis cells is well known in the art, as discussed in the article entitled "Fueling the Future with Water", Science News, Vol. 10, p. 152, Sept. 4, 1976.

In addition to the embodiments described in detail above, those skilled in the art will readily appreciate that many other modifications are possible in the embodiments without materially departing from the novel teachings and advantages of this invention. Accordingly, all such modifications are intended to be included within the scope of this invention as defined by the following claims.

Claims ~ [Claims not included here]

US Patent # 4,426,354

(January 17, 1984)

Power Generator System For HCl Reaction

style="margin: 0in 0.5in 0.0001pt;">**Abstract --** A power generation system includes a nuclear reactor having a core which in addition to generating heat generates a high frequency electromagnetic radiation. An electromagnetic radiation chamber is positioned to receive at least a portion of the radiation generated by the reactor core. Hydrogen and chlorine are connected into the electromagnetic reactor chamber and react with controlled explosive violence when exposed to the radiation from the nuclear reactor. Oxygen is fed into the reactor chamber as a control medium. The resulting gases under high pressure and temperature are utilized to drive a gas turbine generators. In an alternative embodiment the highly ionized gases, hydogen and chlorine are utilized as a fluid medium for use in magnetohydrodynamic generators which are attached to the electromagnetic reactor chambers.

Inventors: Scragg; Robert L. (Miami, FL); Parker; Alfred B. (Miami, FL)

Current U.S. Class: 376/320; 376/323; 976/DIG317
Intern'l Class: G21D 007/04

Other References:

Allen: *Chemical Effects of Ionizing Radiation on Simple Inorganic Compounds & Aqueous Solutions,* Tech. Inf. Div., Oak Ridge Operations.

Background of the Invention

This application is related to copending U.S. patent application Ser. No. 857,895 filed Dec. 6, 1977, which in turn is a continuation-in-part of U.S. patent application Ser. No. 692,495 now U.S. Pat. No. 4,070,861, which in turn is a continuation-in-part of U.S. patent application Ser. No. 657,383 now U.S. Pat. No. 4,026,112, which in turn is a continuation-in-part of U.S. patent application Ser. No. 588,888 now U.S. Pat. No. 4,024,715, which in turn is a continuation-in-part of U.S. patent application Ser. No. 564,087 now U.S. Pat. No. 3,998,205.

This invention relates to a system for converting electromagnetic energy to mechanical energy.

As disclosed in the aforementioned U.S. patents, it is known to convey controlled amounts of hydrogen and chlorine to a chamber which is exposed to high frequency electromagnetic radiation such as derived from the sun or from an artificial light source. The chlorine molecules are broken up into atomic chlorine with some chlorine being ionized. The atomized chlorine combines with hydrogen atoms to form hydrogen chloride. The hydrogen chloride is formed in an exothermic reaction which results in the temperature of the hydrogen chloride being substantially higher than that of the chlorine or hydrogen molecules conveyed to the reactor chamber. The resulting high temperature, high pressure gas is utilized to drive an output device such as a turbine.

Such a system requires a substantial amount of high energy electromagnetic radiation. This is not available from the sun unless a concentrator is utilized. Further, even with a concentrator, the sunlight is not continuously available and the level of sunlight changes with the seasons and with the weather.

Thus there is a need in the art to provide an improved source of high energy electromagnetic radiation.

It is also known in the art to provide a nuclear reactor for converting nuclear into mechanical or electrical energy. A number of different types of reactors are available, however, all reactors generate high frequency radiation including gamma rays. This radiation which is harmful to humans is dissipated through a shield. This energy is thus lost during the nuclear power generation process.

There, accordingly, is a need in the art to provide an improved means for utilizing the high energy radiation generated in nuclear reactors.

Short Statement of the Invention

Accordingly, this invention relates to an energy conversion system which includes an electromagnetic reactor chamber having inputs for controllably coupling chlorine and hydrogen thereto. The chamber is positioned with respect to a nuclear reactor such that high energy radiation from the reactor is conveyed from the nuclear reactor to the electromagnetic reactor chamber. The radiation from the nuclear reactor is, therefore, utilized to convert the hydrogen and chlorine to hydrogen chloride and other highly charged particles at high temperature and pressure levels. Thus a continuous source of high energy radiation is provided while at the same time a means is provided for eliminating the danger of harmful radiation leaking from the nuclear reactor.

Brief Description of the Drawings

Other objects, features and advantages of the present invention will become more fully apparent from the following detailed description of the preferred embodiment, the appended claims and the accompanying drawings in which:

FIG. 1 is a schematic block diagram of the preferred embodiment of the present invention;

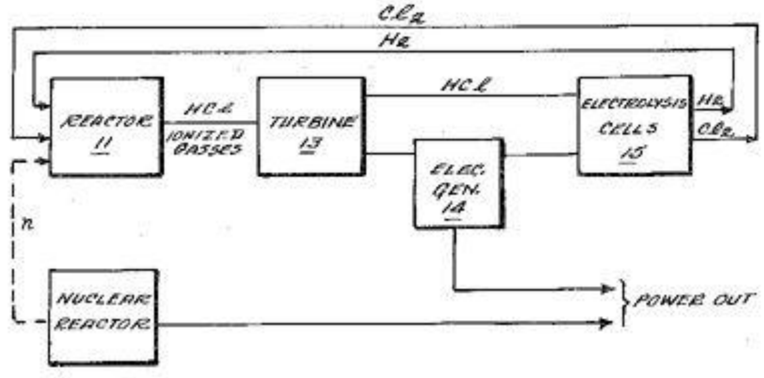


FIG. 2 is a simplified section view of the preferred embodiment of the present invention;

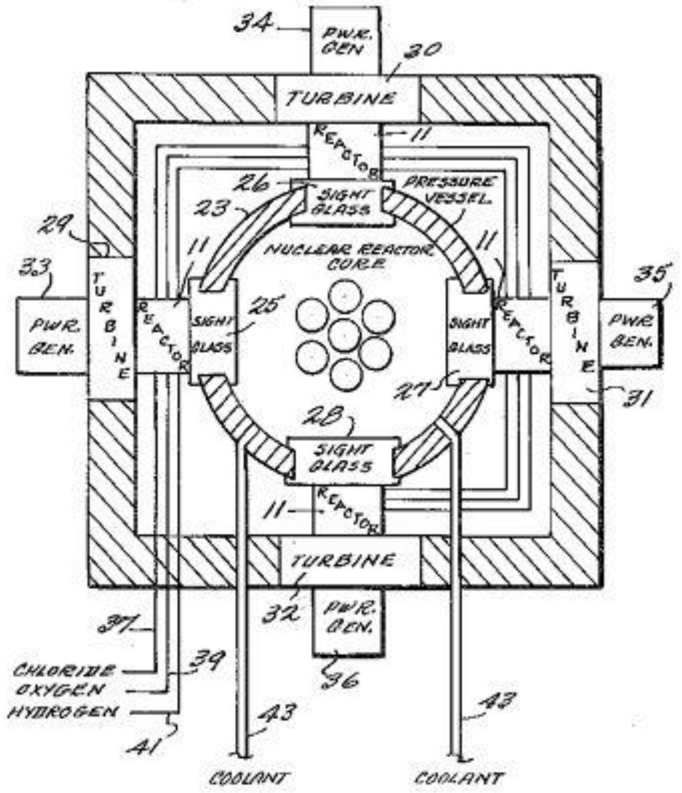


FIG. 3 is a simplified schematic block diagram of the power generation system of the present invention wherein the output of the reactor drives a magnetohydrodynamic generator;

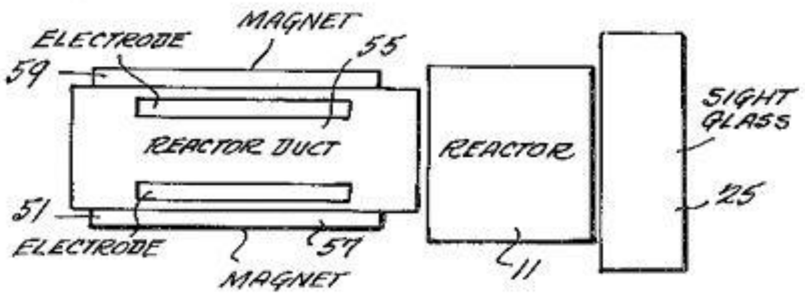
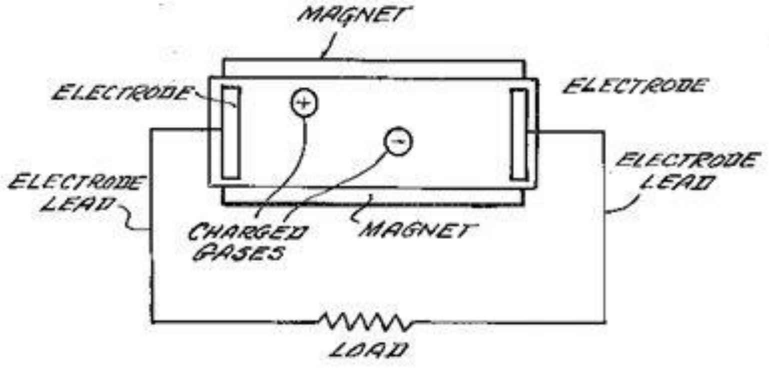


FIG. 4 is a simplified schematic diagram of a magnetohydrodynamic generator .



Detailed Description of the Preferred Embodiment

Refer now to FIG. 1 which is a simplified schematic illustration of the preferred embodiment of the present invention. An electromagnetic reactor chamber 11 of the type illustrated and described in U.S. Pat. Nos. 4,070,861; 4,026,112; 4,024,715 and 3,998,205 each of which are assigned to the common assignee herewith, is shown having its output connected to a turbine 13. As will be explained more fully hereinbelow the reactor generates high temperature, high pressure hydrogen chloride and highly ionized hydrogen and chlorine. These gases are coupled to a turbine 13 which is designed to withstand the highly corrosive hydrogen chloride and which converts the high energy molecules and particles from reactor 11 to mechanical energy. The output of the turbine drives a suitable power output device such as an electrical generator 14. The gases from the turbine which include hydrogen chloride are coupled to an electroylsis cell 15 which through a process of electrolysis commonly known in the art generates molecular hydrogen and chlorine. The molecular hydrogen and chlorine are controllably coupled back to the reactor 11 to form the reactants therein.

As an important part of the present invention, a nuclear reactor 17 of conventional design has a nuclear reactor core therein, together with nuclear fuel rods, moderator rods and control rod piles, each of which are contained in a pressure vessel. The pressure vessel has at least one sight glass in the vessel wall in close proximity to the reactor 11. The nuclear reactor produces thermal and radiant energy as nuclear transition and degradation occurs within the reactor 17. Gamma rays from the reactor are directed into the reactor chamber 11 and absorbed by the chlorine and hydrogen molecules in the presence of oxygen. The resulting highly energized gases generate light, heat and pressure in the reactor 11. The high pressure gases in turn drive the turbine 13. The gases and gamma radiation are quantitatively controlled to bring about the desired reaction between the reactants for the purpose of obtaining the desired energy levels for the turbine 13.

The thermal energy from the nuclear reactor 17 may be utilized to drive the same power output device as driven by the reactor 11 or may be used for any other suitable purpose.

Refer now to FIG. 2 which is a simplified section view of the referred embodiment of the present invention.

As illustrated in FIG. 2, a nuclear reactor power system is illustrated in simplified plan view and includes a reactor housing 21 which is formed of reinforced concrete or other materials capable of retaining high frequency radiation. The housing 21 contains a nuclear reactor core which is positioned within a pressure vessel 23. The pressure vessel has, in the preferred embodiment, a plurality of sight glasses 25-28 which are supported and fixed in the pressure vessel at appropriate intervals about the wall. The sight glasses must be strong enough to support the pressure generated by the nuclear reactor core while at the same time be transparent to the high frequency electromagnetic radiation generated therein.

A plurality of electromagnetic reactor chambers 11 are each positioned proximate a sight glass for receiving the high frequency electromagnetic radiation generated in the core. The electromagnetic reactor chambers, as aforementioned, are of the type disclosed in the aforementioned U.S. patents, the subject matter of which is incorporated herein by reference thereto. The reactor chambers are each secured to a corresponding sight glass by suitable mechanical means to render the chambers pressure tight at the junction of the sight glass and the reactor. Secured to the other end of the reactors are turbines 29-32. Preferably the turbines 29-32 are secured to and supported by the nuclear reactor housing 21 turbines as illustrated. The turbines may be of any suitable degree known in the art. However, the turbine must be capable of withstanding the corrosive effects of hydrogen chloride and highly ionized gases. The turbines are each connected directly to an electric power generator 33-36. The output of the power generators can be utilized for any suitable purpose.

A chlorine conduit 37, an oxygen conduit 39 and a hydrogen conduit 41 are coupled to each of the reactor chambers with the hydrogen and chlorine providing the reactants in the electromagnetic reactor chambers and the oxygen being utilized as a control medium. In addition, as is known in the art, coolant conductors 43 are coupled to the nuclear reactor core to carry away therefrom the heat energy generated in the core.

In operation, in the preferred embodiment, a coolant is circulated through the pipes 43 for the purpose of removing heat from the reactor core with the heat from the core being utilized to generate steam directly or via a suitable heat exchanger for the purpose of providing a means for driving steam turbine generators. In addition, the nuclear reactor produces thermal and electromagnetic energy during the nuclear transition and degradation within the core. As nuclear transformation and degradation occur, gamma radiation is reduced and alpha radiation increased. At least in part of this electromagnetic radiation is conducted through the sight glasses into each of the electromagnetic reactor chambers. At the same time hydrogen and chlorine gas are controllably fed into the reactor chambers together with oxygen. The high energy electromagnetic radiation is absorbed by the chlorine and hydrogen molecules in the presence of the oxygen. The resulting highly energized gases form hydrogen chloride as well as highly ionized chlorine and hydrogen. These highly energized gases generate heat and pressure in each of the reactors which energy is utilized to drive the respective turbines. By controlling the input of hydrogen and chlorine as well as oxygen or by controlling the amount of high energy radiation coupled to the reactor chamber, the desired energy levels can be achieved for driving the respective turbines.

Refer now to FIGS. 3 and 4 which are simplified schematic block diagrams of the power generation system of the present invention wherein the output of the electromagnetic reactor drives a magnetohydrodynamic generator. In this embodiment of the invention of the chlorine and hydrogen gases in the electromagnetic reactor chamber are highly ionized and the resulting charged particles are utilized as a medium for the magnetohydrodynamic (MHD) generators 51 that may be positioned in place of the gas turbines of FIG. 2, or in the alternative may be positioned at the output of the gas turbines to receive whatever ionized gases are passed through the turbine. As is known in the art the ionized hydrogen and chlorine atoms resulting from the absorption of gamma and alpha radiation by the chlorine and hydrogen are expanded into a reactor duct 55 which is in the middle of a magnetic field produced by electromagnets 57 and 59. Electrodes 61 and 63 positioned inside and insulated from the wall of the reactor duct 55 receive the charged particles as they are deflected to the respective electrodes by the electromagnetic field generated by the magnets. Thus a positive potential is generated at one electrode and a negative potential at the other electrode thereby causing the generation of current. The output from the reactor duct may then be utilized by coupling the gases to a suitable storage or conversion units for converting the gases to molecular hydrogen chlorine for feeding back to the reactor chamber in the manner described in connection with FIG. 1.

It should be understood by those skilled in the art that while a preferred embodiment has been disclosed in connection with the present invention there may be other embodiments which fall within the spirit and scope of the invention as defined by the appended claims.

Claims ~ [Claims not included here]

US Patent # 4,374,288

Electromagnetic Process and Apparatus for Making Methanol

US Cl. 568/910 ~ Feb. 15, 1983

Robert L. Scragg

Abstract ~ An electromagnetic methanol reactor system which includes an enclosed reactor chamber having a pair of electrodes positioned in the chamber and spaced from the walls thereof. An electromagnetic field is generated across the electrodes wherein the field has sufficient strength to atomize oxygen. Methane is continuously supplied to the chamber and oxygen is supplied to the chamber between the electrodes so that the oxygen is atomized. The oxygen combines with the methane to form methanol.

References
U.S. Patent Documents: 2462301 // 2801260 // 2824131 // 2922809 // 3067115 // 3092667 // 3205162 // 3445191 // 3745193 // 3993672 // 4101394 // 4214962 // 4243613
Foreign Patents: DE 1302390 // DE 1302391

Description

BACKGROUND OF THE INVENTION

The present invention relates to a system of producing methanol.

The most recent technique for methanol synthesis involves a low pressure process by which synthesis gas is prepared. This synthesis gas is prepared by the steam reforming or partial oxidation of a liquid or gaseous hydrocarbon feedstock or by direct combination of carbon dioxide with purified hydrogen rich gases. Typically, naphtha or natural gas feedstock is desulfurized, preheated, mixed with a superheated steam and then reacted over a conventional catalyst in a multi-tubular reformer. After cooling, the synthesis gas is compressed to the required synthesis pressure. The synthesis gas is passed into a hot-wall convertor over a low pressure methanol synthesis catalyst at a temperature range of 250.degree. to 270.degree. C. The crude methanol thus formed is condensed and separated from the uncondensed gases which are recycled with makeup synthesis gas and fed back to the converter. See, for example, page 733 of the "Chemical and Process Technology Encyclopedia".

In the aforementioned process and in other processes of producing methanol by techniques known today, it is necessary to provide production facilities where a large amount of hydrogen and carbon monoxide are produced by environmentally dangerous processes, by methane cracking and coking. These facilities are environmentally limited to certain heavy industrial areas of the world and necessitate long-range and expensive transport of the finished methanol. The transportation expense offsets the economic production of methanol in the volume heretofore contemplated.

Merthanol, wood alcohol, has been and still is a key chemical used in the production of many industrial and consumer products and is now being sought after as a fuel. Thus, as petroleum products become less available and more expensive, the Government and consumers are seeking ways and techniques for reducing existing fuel shortages and the cost of new fuels. For example, see "Gasohol, A Technical Memorandum", September 1979; Congress of the United States, Office of Technology Assessment (OTA), Washington, D.C. 20510, page 60. In the introduction, this Memorandun states "In fiscal year 1979, OTA estimated that federal expenditures of between $13 and $17 million directly supported the development of alcohol fuels from biomass.

In fiscal year 1980 the Administration's research activities are expected to be funded at a level between $18 and $25 million. Additional subsidies include $40 million in loan guarantees, exemption of the federal excise tax on gasohol (for domestic production and imports), eligibility of alcohol fuels for entitlement awards and an investment tax credit of 20% on alcohol fuels facilities." The most promising fuel to alleviate current and anticipated shortages is methanol. Methanol is produced from carbon feedstocks such as natural gas (methane) and coal which are in plentiful supply and are not dependent on grain as is ethanol. Methanol can be mixed with gasoline to form gasohol or even used independently as a fuel. Methanol, as a fuel, has a research octane rating of 106-115 and a motor octane rating of 88-92. When 9 parts gasoline are mixed with 1 part methanol, the research octane rating of the mix is increased from 91.1 to 95.5 octane, and the motor octane rating from 82.5 to 84.5 octane. See, for example, pages 4-45, "Energy Technology Handbook", Douglas M. Considine, McGraw-Hill, Inc.

Methanol is also a competitive way of tranporting natural gas from the wellhead to the consumer. Wellhead gas, which is currently being burned off into the atmosphere in many major oil fields outside the United States, is a potentially cheap fuel when converted to methanol and shipped to the marketplace. Other natural gas producing fields that are not accessible to gas pipelines are compressing the gas to liquid natural gas (LNG) and shipping the compressed gas to gasification plants that have access to gas pipelines. The conversion and shipping of methanol to gasification plants is a simpler, safer and more economical way of transporting natural gas. See pages 2-124, "Energy Technology Handbook", Douglas M. Considine, copyrighted 1977, McGraw-Hill, Inc.

It therefore is an object of this invention to provide a method and apparatus for producing methanol by environmentally acceptable techniques.

It is another object of this invention to provide a method and apparatus for producing efficiently and economically both small and large quantities of methanol.

It is another object of this invention to provide a method and apparatus for producing methanol to be used as a fuel or fuel additive from pipeline or wellhead natural gas.

It is another object of this invention to provide a method and apparatus for producing methanol as a transport medium of natural gas from a wellhead to gasification plant.

SHORT STATEMENT OF THE INVENTION

Accordingly, the present invention relates to a method and apparatus for forming methanol. By the method, methane is conveyed to an electromagnetic combustion and condensing reactor. Oxygen is also conveyed into the reactor where it passes through an electromagnetic field and is atomized prior to convergence and combustion with the methane. The atomized oxygen combines stoichiometrically with the methane in an exothermic reaction to generate methanol gas which is condensed in the reactor to form liquid methanol.

BRIEF DESCRIPTION OF THE DRAWINGS

Other objects, features, and advantages of the present invention will now become more fully apparent from the following detailed description of the preferred embodiment, the appended claims, and the accompanying drawings in which:

FIGURE 1 is a simplified cut-away view of the electromagnetic methanol reactor of the present invention; and

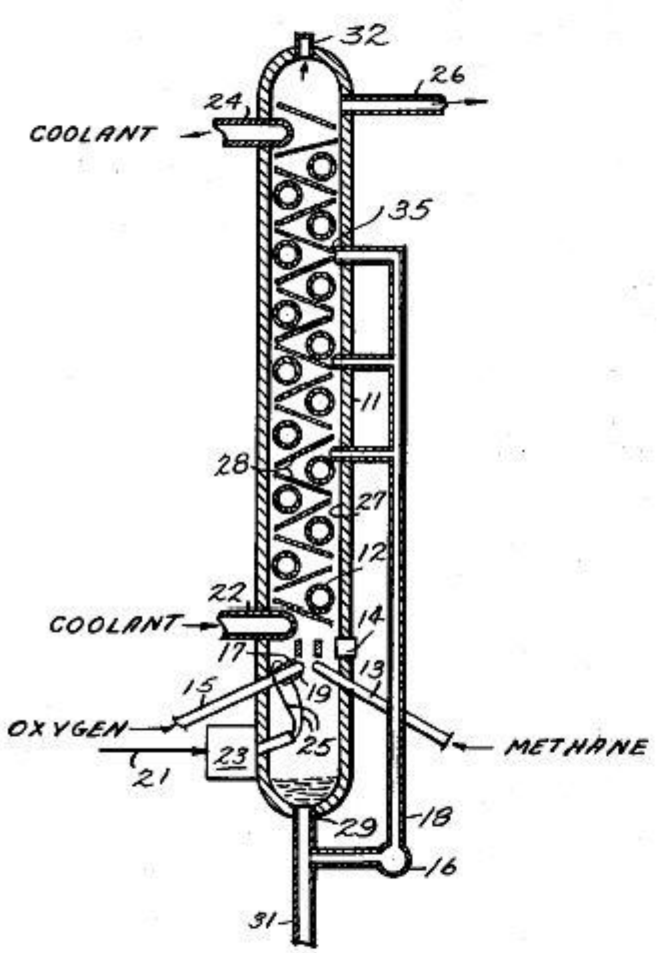
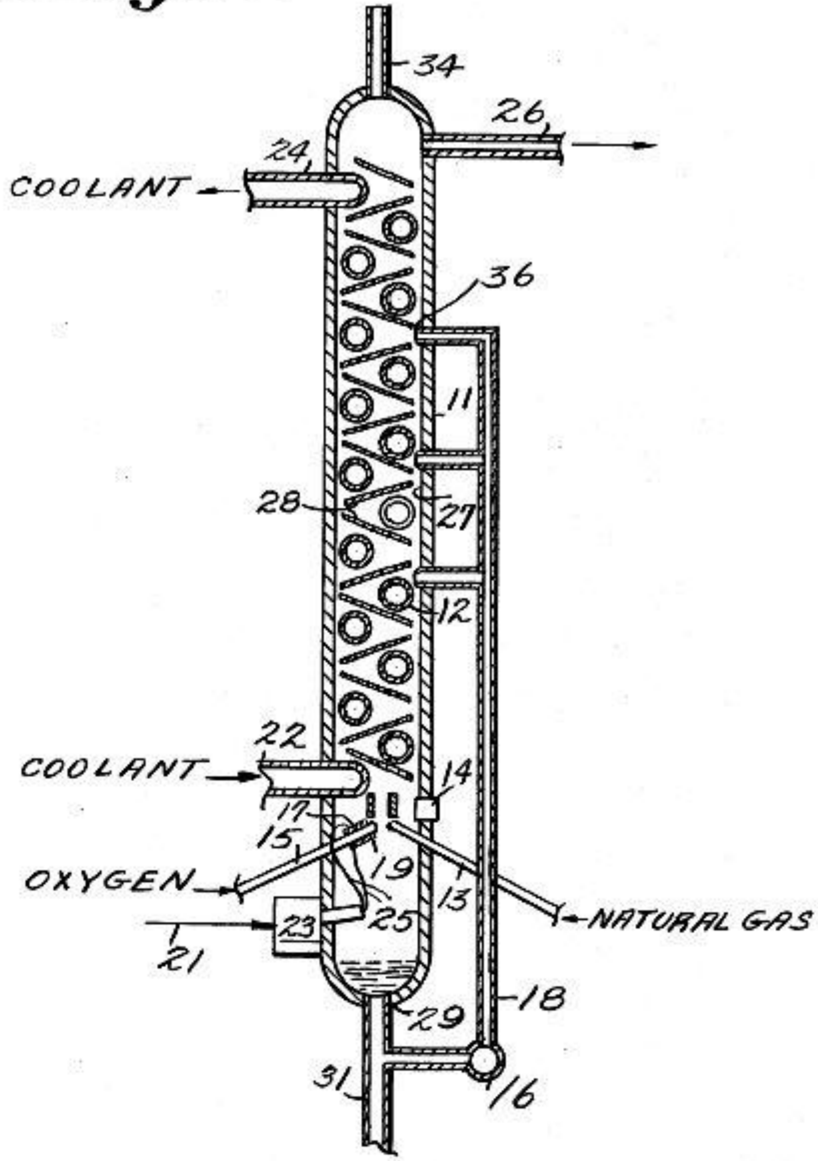


FIGURE 2 is a simplified cut-away view of an alternate embodiment of the electromagnetic reactor of the present invention.

Fig. 2.



DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

As illustrated in FIG. 1, an electromagnetic methanol reactor 11 receives a supply of methane gas from a natural gas supply line 13. The methane is derived from a natural gas supply that has been scrubbed of nitrogen, hydrogen and carbon monoxide trace gases and is typically 96.5% pure methane. Molecular oxygen is fed to the electromagnetic reactor 11 via an oxygen supply line 15. The oxygen is derived from an electrolyzer plant or an air reduction plant and is typically 99.5% pure. The two gases, methane and oxygen, are fed into the reactor 11 at low pressure, under 75 psig, and low velocity. The molecular oxygen is passed between electrostatic plates 17 and 19 which form a gap therebetween. A high voltage transformer 23 is powered by an alternating current supply line 21. The output of transformer 23 is variable and can be adjusted to provide between 1,000 and 10,000 volts on the secondary winding. The spacing of the electrostatic plates 17 and 19 is adjusted to prevent arcing between the plates 17 and 19 depending on the density of the flow volume of the oxygen and the dielectric characteristics of the oxygen. The electrostatic field between the plates 17 and 19 generates heat by hysteresis action sufficient to weaken and break the bond between the oxygen atoms prior to their combination with the methane molecules. The reaction is observed, visibly and spectroscopically, via sight glass 14. The combustion temperature should be in the neighborhood of 1200.degree. C. The oxidation and reduction of the methane molecules by the oxygen atoms forms methyl molecules CH_3 and hydroxy molecules OH that combine to form the methanol molecules, i.e., methanol gas, by the following reaction:

CH_4 +O.fwdarw.CH_3OH

The methanol gas thus formed in the reactor chamber 11 rises in the reactor column encountering vortex baffle plates 28 in the center of the reactor column to decrease the velocity of the methanol gas and direct the gas to the walls of the water cooled helical coils 12 and to the air cooled wall 27 of the reactor column. The reactor column wall 27 is air cooled or water cooled to 64.degree. C. or lower which is below the boiling point of methanol liquid. The cooling water passed through the helical coils 12 is conveyed with respect to the coils 12 via lines 22 and 24 and reduces the temperature of the methanol gas inside the reactor 11 below the critical temperature of 240.degree. C. and the critical pressure of 78.7 atmospheres to a temperature of less than 112.degree. C. and to a pressure of less than 5 atmospheres. The methanol gas cools as its velocity is slowed during its rise up the reactor column 11 and as it is repeatedly directed to the walls of the water cooled helical coils 12 and the cool wall 27 of the reactor column 11. The methanol gas is cooled and pressurized to form liquid methanol prior to reaching the top of the reactor 11 column because it condenses on the walls of the water cooled helical coils 12 and the reactor wall 27. To increase the rate of reaction, methanol liquid is taken from line 31 via line 18 and pumped via pump 16 into spray nozzles 35 along the reactor column wall 27. The liquid methanol is atomized by the spray nozzles 35 and vaporized on contact with the hot methanol gas producing methanol vapor. The methanol vapor produced by the reaction condenses rapidly on contact with the cool reactor column wall 27 and helical coils 12. Any methanol gas not condensed prior to reaching the top of the reactor column 11 is vented via line 26 to an additional condensing stage. As the condensed methanol vapors accumulate on the walls of the helical coils 12 and the wall 27 of the reactor column 11, the liquid condensate, i.e., methanol liquid, gravitates down the wall 27 to the bottom of the reactor 11 and down through line 31 via port 29 to a storage reservoir. Port 29 and line 31 are designed to retain liquid methanol to a desired level in the bottom of the reactor 11. Light trace gases, primarily, nitrogen, accumulate in the reactor dome and build up pressure in the reactor which increases the rate of condensation of the methanol gas at the top end of the reactor column 11. The pressure is maintained at or below a predetermined level in the reactor column 11 to prevent back pressure on the burner at the bottom of the reactor 11 thereby sustaining the desired stoichiometric combination of oxygen and methane, and is vented by a pressure loaded check valve 32. The dimensions of the reactor 11 are directly proportional to the desired volume of the reactants, the cooling medium and pressure levels of the reactor.

Refer now to FIG. 2 where there is illustrated an alternate embodiment of the electromagnetic reactor of the present invention. As illustrated in FIG. 2, an electromagnetic methanol reactor 11 receives a supply of natural gas via supply line 13. The natural gas being typically composed of 96.5% methane, 3% nitrogen, 0.5% hydrogen and a trace of carbon monoxide when furnished from a natural gas supplier or after treatment of wellhead gas. Molecular oxygen is fed to the electromagnetic reactor 11 via supply line 15. The oxygen is derived from an electrolyzer plant, an air reduction plant or from air. The oxygen derived from ambient air is typically 75% nitrogen, 24% oxygen and 1% trace gases, e.g., helium, hydrogen, neon, argon, etc. The gases, natural gas and atmospheric oxygen, are fed into the reactor 11 at low pressure, e.g., under 75 psig, and at a low velocity. The molecular oxygen and/or air is passed between electrostatic plates 17 and 19 which form a gap therebetween. A high voltage transformer 23 is energized from an alternating current supply line 21. The output of transformer 23 is variable between 1,000 and 10,000 volts depending upon the input voltage and, of course, the transformer ratio. The spacing of the electrostatic plates 17 and 19 is adjusted to prevent arcing between the plates 17 and 19 depending on the density of the flow of the atmospheric oxygen and the dielectric characteristics thereof. The electrostatic field between the plates 17 and 19 weakens and breaks the bond between the oxygen atoms prior to their combustion with the methane molecules in the natural gas. Other molecules mixed with the oxygen when it is derived from air, such as nitrogen, are not atomized. The electrostatic plates are adjusted to break oxygen molecular bonds with a heat of atomization of 59.5 Kcal per g-atom. Nitrogen requires 113 Kcal per g-atom. The oxidation of the methane molecules by the oxygen atoms forms methanol molecules, i.e., methanol gas, with a weight of 32 grams per mole. The nitrogen in the reactor 11 does not chemically react and form other molecular bonds due to the low heat of the methaneoxygen burn. The methanol gas which is formed by the process is cooled and condensed by the same method described in connection with FIG. 1. Nitrogen at 28 grams per mole, trace hydrogen at 2 grams per mole, which are not reacted with atomic oxygen, and trace carbon monoxide at 28 grams per mole are vented out of the reactor via port 33 through stack line 34. The size of port 33 and stack line 34 are designed to hold a predetermined back pressure on the chamber to accelerate the rate of condensation of the methanol gas.

While the present invention has been disclosed in connection with the preferred embodiment thereof, other design configurations of gas reacting and condensing columns with other types of cooling systems may be utilized to react methane and atomic oxygen to form methanol gas and to condense said gas to methanol liquid and it should be understood that other embodiments of the invention may be used in accordance with the spirit and scope of the invention as defined by the appended claims.

[Claims not included here]

US Patent # 6,000,214

Detonation Cycle Gas Turbine Engine System Having Intermittent Fuel and Air Delivery

Cl. 60/39.38 ~ Dec. 14, 1999

Robert L. Scragg
(PO Box 9083, Daytona Beach, FL 32120-9483)

Abstract -- A detonation cycle gas turbine engine includes a turbine rotor contained within a housing. Exhaust ports of respective valveless combustion chambers on opposite sides of the rotor direct combustion gases toward the turbine. The chambers are connected by a valveless manifold fed with fuel and oxidizer. When combustible gases are detonated by an igniter in one of the combustion chambers, the back pressure from the detonation shuts off the fuel and oxidizer flow to that chamber and redirects the fuel and oxidizer to the opposite chamber, where detonation occurs, the process repeats cyclically. Power is taken off the rotor shaft mechanically or electrically.

References

U.S. Patent Documents

1174439 ~Mar., 1916 ~Pelley ~60/39
2608058 ~Aug., 1952 ~Geeraert ~60/39
4254617 ~Mar., 1981 ~Papsdorf ~60/39
4374288 ~Feb., 1983 ~ Scragg ~568/910
4589398 ~May., 1986 ~Pate et al. ~123/596
4807440 ~Feb., 1989 ~Salem ~60/39

Other References

Pratt, G. L., "Experimental Methods", Gas Kinetics, Chapter Two, John Wiley & Sons Ltd., pp. 50-59

Primary Examiner: Kim; Ted
Attorney, Agent or Firm: Shoemaker and Mattare, Ltd.

Description

BACKGROUND OF THE INVENTION

The invention described hereinafter is directed to the field of detonation cycle gas turbines and to the methods and apparatus constituting said turbine system.

In the field of gas turbines and piston engines, there are different methods and apparatus which are utilized to convert the kinetic and thermal energy of gas reactions in combustion chambers to extract useful work. The design of the combustion chambers, the expanders, the type of fuel, the fuel-air ratio, the pressure of the fuel-air mixture prior to ignition, and the type of ignition, all determine the rate of oxidation. The rate of oxidation determines and defines whether the fuel and the oxidizer produce a constant propagating flame, a deflagrating explosion and accelerated flame front, or a detonation and high velocity shock waves. In either case, the oxidizer must be activated or raised to a higher energy level by some means to initiate the oxidation reaction. The manner of the activation will vary the rate of the reaction and produce the variation in result from a flame, to a deflagrating explosion, to a detonation.

The methods and apparatus utilized in an Otto cycle spark ignition gasoline piston engines are variable volume--constant pressure--combustion chambers, that induce and compress air and fuel mixtures to 6 or more atmospheres reducing the atmospheric ignition temperature from 1,000 degree F to 500 degree F, then ignite the mixture with an electric spark producing low power photolytic and radiolytic radiation, typically 80 millijoules, that activates and disassociates oxygen and hydrocarbon molecules in the immediate proximity of the electric spark, resulting in a deflagrating explosion with an accelerated flame front. The thermal energy of the flame front propagates throughout the mixture, thermally activating and chemically combining remaining reactants in a "chain burn" with typical mean pressures of 90 pounds per square inch gauge over a time period of 8 to 16 milliseconds while expanding the pistons down the chambers. The methods and apparatus utilized in Otto cycle engines are not useable with Diesel cycle engines, Brayton cycle or Detonation cycle turbines. Otto cycle engines in the 200 horsepower range typically utilize 9 pounds of air and 0.6 pounds of fuel per horsepower hour while producing 9.6 pounds of exhaust gas per horsepower hour.

The methods and apparatus utilized in Diesel cycle compression ignition diesel fuel piston engines are variable volume--constant pressure--combustion chambers, that induce and compress air to 15 or more atmospheres, and injects compressed fuel in the top of the chamber at the top of the compression stroke. Molecules of oxygen and hydrocarbons disassociate when compressed against the hot head of the combustion chambers resulting in free radicals that chemically combine exothermally in a deflagrating explosion with an accelerated flame front. The thermal energy of the flame front probagates throughout the mixture, thermally activating and chemically combining remaining reactants in a "chain burn" with mean pressures typically in excess of 90 pounds per square inch gauge over a time period of 12 to 24 milliseconds while expanding the pistons down the chambers. The methods and apparatus utilized in in Diesel cycle engines, are not useable with Otto cycle engines, Brayton cycle or Detonation cycle turbines. Diesel cycle piston engines in the 200 horsepower range typically utilize 11 pounds of air and 0.55 pounds of fuel per horsepower hour while producing 11.55 pounds of exhaust gas per horsepower hour.

The methods and apparatus utilized in Brayton cycle compression ignition turbine fuel gas turbines are constant volume--constant flow--constant pressure combustion chambers; a compressor that compresses air from 3 to 6 atmospheres; a pump that compresses fuel up to 40 atmospheres; and an axial flow or radial inflow turbine expander. Compressed air is fed into the combustion chamber and combined with the hot compressed fuel. An Infrared glow plug is often utilized to increase the thermal activation of the oxygen and hydrocarbon molecules, at the surface of the plug, to bring the mixture to the ignition temperature. Ignition occurs as a very low pressure deflagrating explosion with a constant pressure flame front. The thermal energy produced by the flame front radiates thermal waves with sufficient energy to continuously ignite the constant flowing high pressure fuel-air mixture and expand the surplus air in the burn plennum to drive the turbine while maintaining a constant pressure. Maintaining constant pressure is critical. Variation of pressures in the combustion chambers will cause flame out. Over pressure in the plennum will stall the compressor. The methods and apparatus utilized in a Brayton cycle turbine are not useable with Otto cycle or Diesel cycle engines, nor Detonation cycle turbines. Brayton cycle gas turbines In the 200 horsepower range, operated in an open cycle configuration at sea level, typically utilize 40 pounds of air and 1.2 pounds of fuel per horsepower hour, while producing 41.2 pounds of exhaust gas per horsepower hour.

SUMMARY OF THE INVENTION

The methods and apparatus utilized in this invention, a Detonation Cycle Gas Turbine, are two constant volume -- cyclic flow -- combustion chambers connected by a common manifold; a blower that produces and supplies low pressure air to the manifold; a fuel pump that supplies low pressure gaseous fuel to the combustion chambers; and a constant visible arc ignition; and a positive displacement turbine. The blower supplies air to the combustion chambers via the manifold. Fuel is Injected into venturis in the manifold next to the combustion chambers. The high power, 300 joule, arc ignitions, producing photolytic and radiolytic particles and waves disassociates oxygen and hydrocarbon molecules throughout the combustion chambers, producing complete detonation and high velocity shock waves that kinetically compress the remaining inert gases in the combustion chambers. Detonation pressures exceed 80 atmospheres and produce mean chamber pressures of 20 atmospheres to drive the turbine. The methods and apparatus utilized in Detonation cycle gas turbine are not useable with Brayton cycle gas turbines, nor Otto cycle and Diesel cycle engines. The Detonation cycle gas turbine, operated in an open cycle configuration at sea level in the 200 horsepower range, typically utilizes 5.2 pounds of air and 0.3 pounds of fuel per horsepower hour while producing 5.5 pounds of exhaust gas per horsepower hour.

This invention utilizes a modified Pelton Water Wheel, as the turbine wheel, with blades that are positively displaced through a blade race by kinetic impact and expansion of gases exiting from combustion chambers via nozzles, rather than pistons, axial flow, or radial inflow expanders.

This invention utilizes a turbine housing with a turbine wheel chamber that directs expanding gases through a positive displacement blade race tangentially followed by an expanded blade race to an exhaust port.

This invention utilizes a blower, rather than a compressor, to supply less air per horsepower hour than required by existing gas turbines or piston engines, thereby producing less exhaust gas per horsepower hour.

This invention utilizes a blower, rather than a compressor, to supply low pressure air, less than 2 atmospheres, via a single manifold to two combustion chambers simultaneously.

This invention utilizes a blower, rather than a compressor, to supply less air at lower pressure; thereby consuming less work to complete a detonation cycle, resulting in higher thermomechanical efficiencies than gas turbines or piston engines.

This invention utilizes manifolds, combustion chambers and ignition systems that have the capability of cyclically detonating fuel-air mixtures without utilizing valves.

This invention utilizes fuel pumps and vaporizers to gasify wet fuels prior to mixing with combustion air to produce more complete combustion of fuel-air mixtures in the detonation process.

This invention utilizes venturis in the manifolds to uniformly mix gaseous fuels with combustion air prior to injection in the combustion chambers to produce complete combustion of fuel-air mixtures in the detonation process.

This invention utilizes a plasma arc ignition, a visibly constant illuminating plasma flame between two electrodes, to detonate fuel air mixtures and does not require critical Ignition timing.

This invention utilizes low pressure air and fuel mixtures that are detonated instanteously, in less than one millisecond, producing high velocity shock waves that kinetically compress inert gases resulting in higher working pressures than the pressures produced in constant pressure heating utilized in Brayton cycle turbines, Otto and Diesel cycle piston engines.

This invention utilizes a detonation cycle that utilizes less working fluid and produces significantly less exhaust gas per horsepower hour than Brayton cycle turbines, Otto or Diesel cycle piston engines.

At least one turbine is provided in driving relation to a shaft supported in bearings mounted in opposite end walls of a housing for the turbine. The side walls of the housing are ported to accommodate combustion chambers, expansion chambers and exhaust ports. The combustion chambers are secured to the housing over each respective port, with the firewall end of the chamber facing the periphery of the turbine. Expansion chambers and exhaust ports are positioned downstream from the combustion chambers. Nozzles are ported in the firewalls of the combustion chambers, extend and are directed to the periphery of the turbine. High-voltage electrodes are positioned in the wall of each combustion chamber and are continuously fired by high frequency high-voltage transformer and capacitor networks. A low static pressure rotary blower is driven by the turbine shaft to supply air as an oxidizer via a common manifold feeding two combustion chambers. Fuel gas, injected into venturi turbes on the downstream end of the manifold, mixes with the oxidizer and is fed into the combustion chambers at low static pressure. Both radiolytic and photolytic radiation produced by the high voltage-high frequency plasma arcs in the combustion chambers atomizes and ionizes oxygen molecules initiating instantaneous oxidization and detonation producing high-pressure shock waves that kinetically compress Inert gas molecules in the chambers. The resulting high-pressure compressed gases are directed from the combustion chambers to the periphery of the turbine via nozzles. The high pressure compressed gases, when exhausted from the nozzles, kinetically impact positive displacement blades on the periphery of the turbine, imparting momentum to the turbine. As the turbine rotates, the compressed gases expand across the periphery of the turbine blades into an expansion chamber further accelerating the turbine. The compressed gases continue to expand via the respective exhaust ports. The torque produced by the acceleration of the turbine and shaft is converted to work or power by conventional mechanical or electrical means. Acceleration, torque, and resulting power output can be increased or decreased by the volumes of combustion chambers, the number of combustion chambers and turbines, the radius of the turbines, and the amount of air and fuel utilized.

The principles of the invention will be further discussed with reference to the drawings wherein preferred embodiments are shown. The specifics illustrated in the drawings are intended to exemplify, rather than limit, aspects of the Invention.

BRIEF DESCRIPTION OF THE DRAWINGS

In the Drawings:

FIGURE 1 is a block diagram of the turbine engine system;

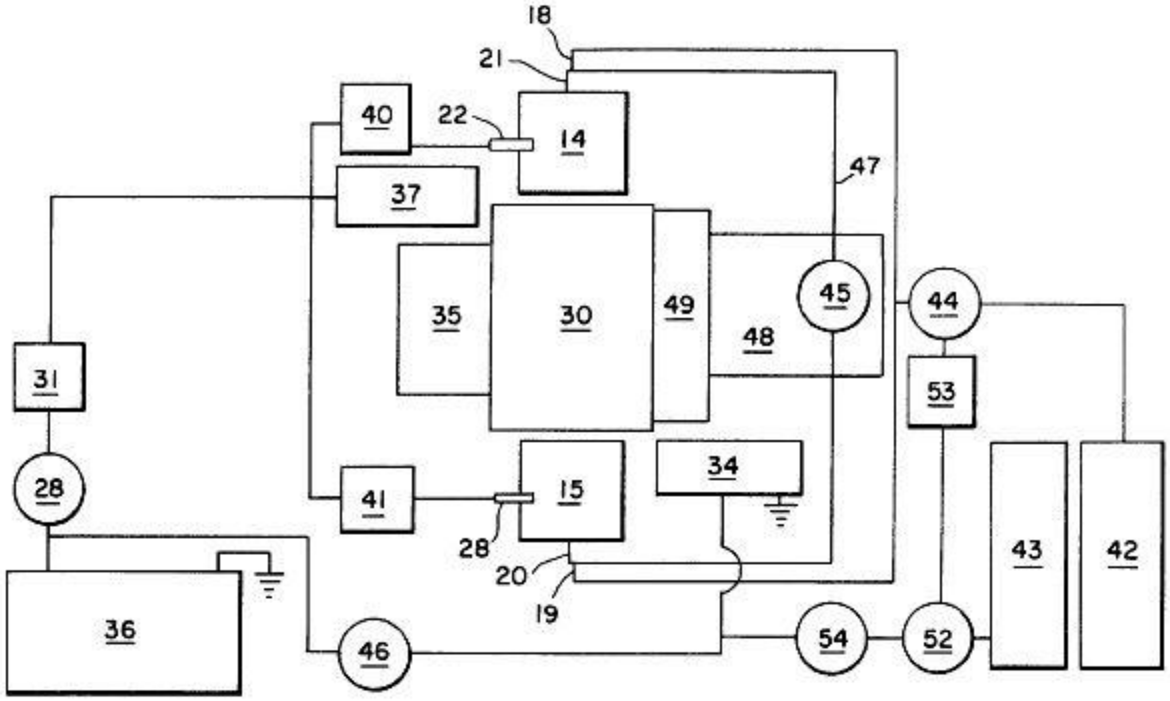


FIG. 1

FIGURE 2 is a cross-sectional view of the turbine engine, rotary blower, manifolds and combustion chambers of the system shown in FIG. 1;

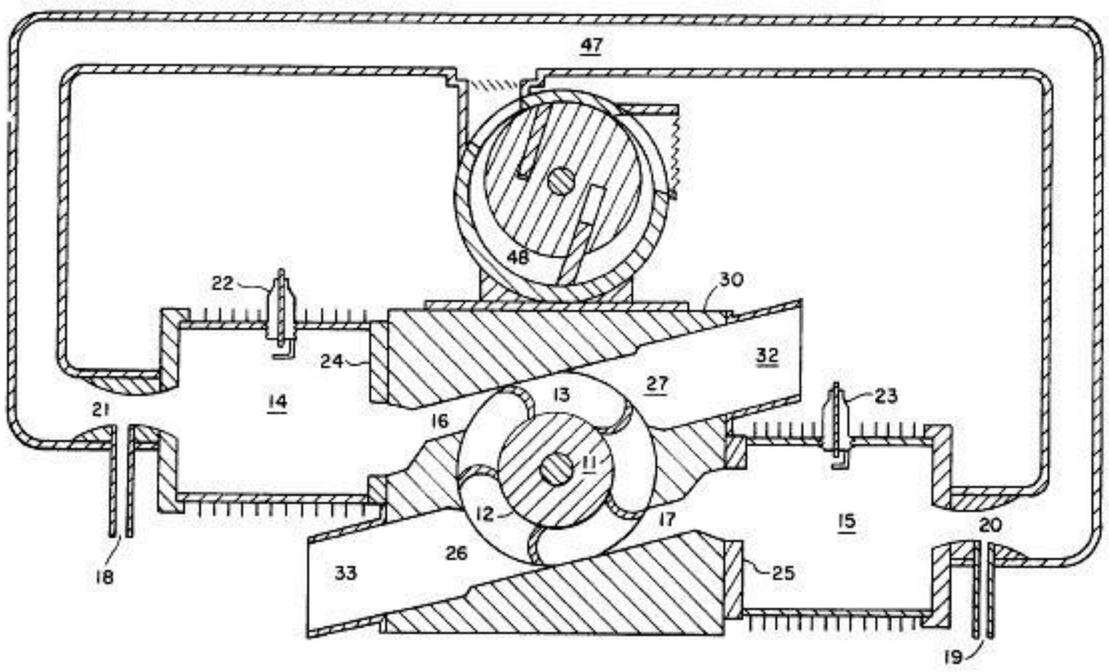


FIG. 2

FIGURE 3 is a block diagram of an acceleration testing system for a high inertia turbine engine system of the present invention utilized as a fluidic dynamometer;

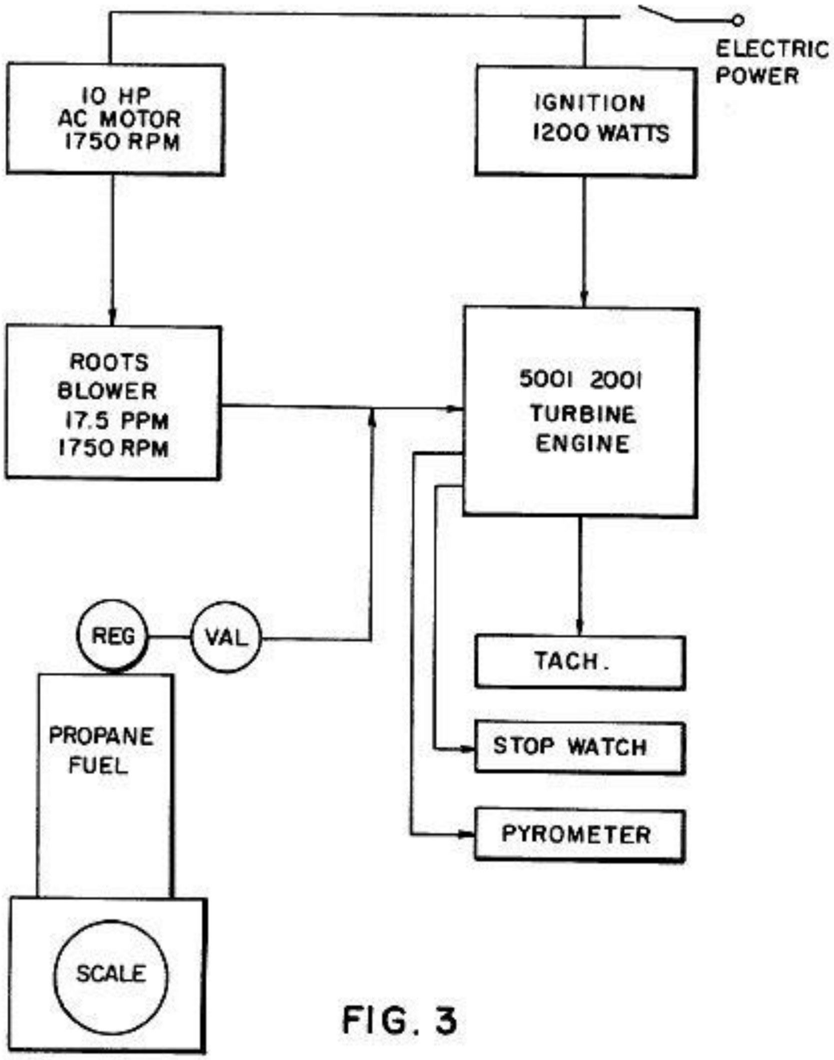


FIG. 3

FIGURE 4 is a graph of total temperature drop across turbines versus working fluid horsepower for the turbine engine system of FIG. 3;

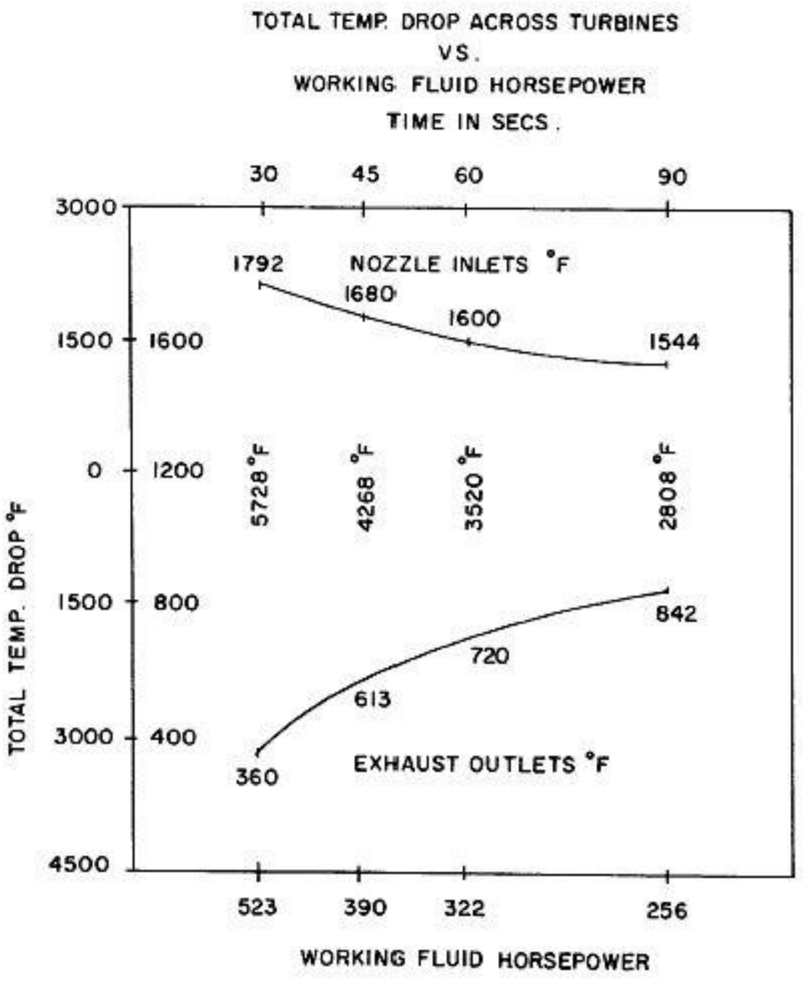


FIG. 4

FIGURE 5 is a graph of acceleration and torque versus RPM and shaft horsepower for the turbine engine system of FIG. 3;

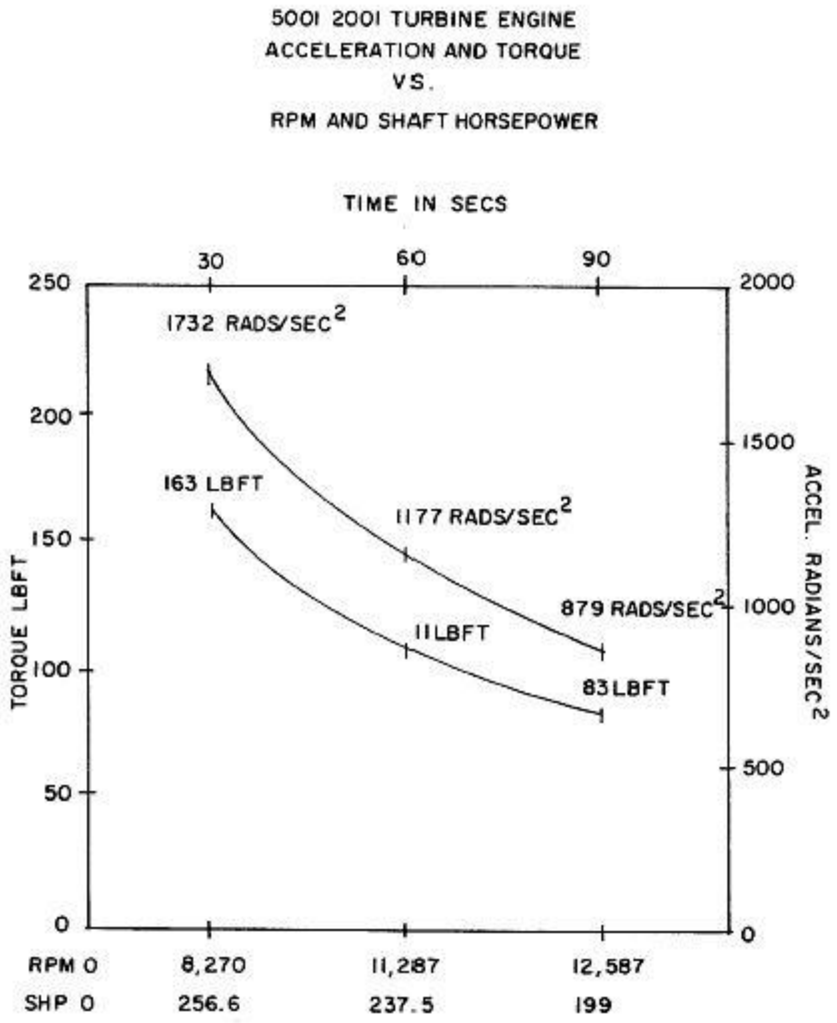


FIG. 5

FIGURE 6 is a graph of nozzle inlet and exhaust outlet acceleration gas temperatures versus RPM and shaft horsepower for the turbine engine system of FIGURE 3;

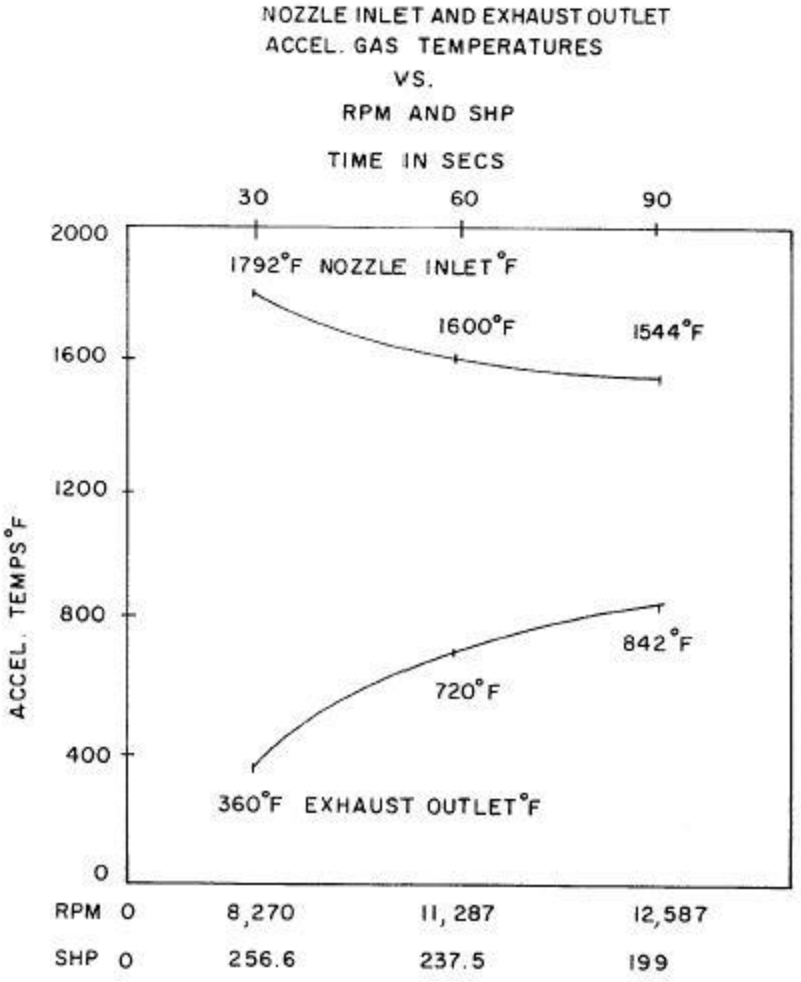


FIG. 6

FIGURE 7 is a graph of working fluid horsepower versus shaft horsepower and the resulting heat loss in horsepower across high-inertia turbines.

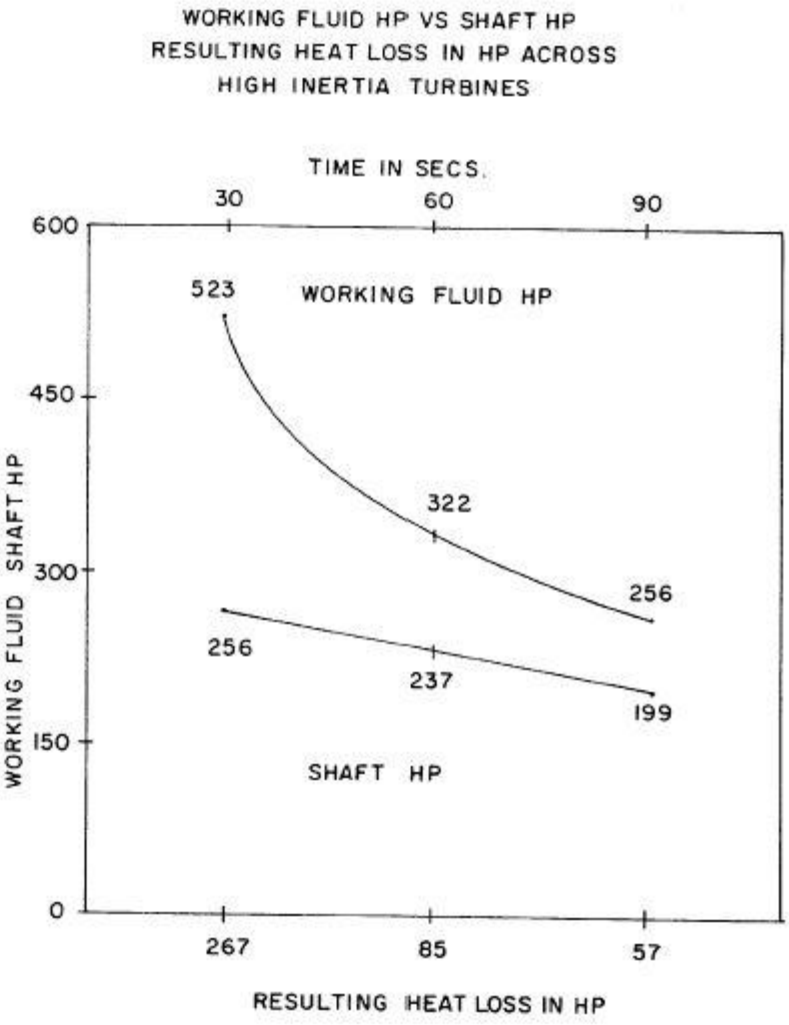


FIG. 7

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

In the illustrated preferred embodiment, the Detonation Cycle Gas Turbine is illustrated in FIGS. 1 and 2. Referring to FIGS. 1 and 2, the turbine system includes a straight drive shaft 12 on which are mounted for rotation with the drive shaft, a positive displacement turbine wheel 11, a conventional rotary blower 48, a conventional flywheel 49 and a conventional power take-off unit 35 operatively connected to a conventional alternator 37.

The turbine engine further includes a block 30 (FIG. 1) having end walls in which the drive shaft 12 is journalled for rotation. The block 30 has an internal cavity in which the turbine 11 is housed, this cavity includes two axially opposite end walls and an outer peripheral wall. The block 30 is suitably air, water or chemical cooled.

The turbine wheel 11 (FIG. 2) has a plurality of blades mounted on the radially outer periphery thereof at a plurality of equiangularly spaced sites. The individual blades extend axially from end wall to end wall of the internal cavity, and from the outer peripheral wall of the turbine wheel to the outer peripheral wall of the internal cavity. Suitable slide bearing surface are provided between the turbine blades and cavity walls. Accordingly, a succession of chambers is defined in a series about the turbine wheel 11 between angularly successive turbine blades.

The turbine engine has two combustion chambers, chambers 14 and 15 having respective firewalls 24, 25, provided at the inner end walls thereof. Fuel-oxidizer manifold ports are provided through the outer end walls thereof. A common inlet manifold 47 for low-pressure oxidizer gas, is intersected at inlet venturi throats 20, 21 by fuel inlet orifices 18, 19.

In accordance with principles of the invention, the combustion chambers are intersected between the inlet and firewall thereof by electrodes 22, 23, the inner ends of which are disposed within the combustion chambers, for providing a visible plasma arc therein during operation of the turbine engine. Through each firewall, directional nozzles 16, 17 communicate through the radially outer peripheral wall of the internal cavity of the block 30.

Generally, one-eighth of the way around the internal cavity of the block 30 from where nozzles 16, 17 intersects the outer peripheral wall of the internal cavity, the internal cavity is provided with expansion chambers 26, 27 leading outward to exhaust ports 32, 33.

The turbine, block, combustion chambers, inlets and outlets may be made of materials and using constructional techniques that are utterly conventional in the manufacture of piston and turbine engines.

The fuel supply (FIG. 1) for the turbine engine includes two fuel tanks. Fuel tank 42 is for gaseous fuels and fuel tank 43 for wet fuels. Both are connected by a fuel line to both orifices 18,19, via a throttle regulator valve 44. Fuel tank 43 has a motor 54 that drives a wet fuel pump 52 and sprays fuel into a fuel vaporizer 53 that converts the wet fuel to gas which is fed to throttle regulator valve 44.

The oxidizer supply for the turbine engine includes a manifold 47 connecting both venturi inlets 20, 21 with the output side of the rotary blower 48. At an upstream end of the manifold 47, a check valve 45 is provided for preventing compressed oxidizer backflow towards the blower.

The electrical system for the turbine engine system includes a battery 36, a starter motor 34, a voltage rectifer 31, a voltage regulator 28, an alternator 37, a power switch 46, and two high voltage ignition transformers 40,41. In operation, the power switch 46 is turned on to actuate the system, and engages the starter motor 34 with the battery 36. The starter motor 34 engages the flywheel 49 thus turning the drive shaft 12, power take off 35, alternator 37, and the air blower 48. The air blower 48, driven by the drive shaft 12, produces low pressure air that is fed via the check valve 45 and manifold 47 to the inlet venturis 20,21. Fuel gas from fuel tank 42 or 43 is throttled via regulator valve 44 into the low pressure air stream via orifices 18,19 and into the chambers 14,15, via the venturis 20,21. The alternator 37 provides electrical power to high voltage transformers 40,41, that supply high voltage to arc electrodes 22,23.

According to the preferred design, the low pressure air manifold piping to the combustion chamber 14 is shorter in length than that to the combustion chamber 15. Accordingly, the fuel-air detonation occurs in combustion chamber 14, closely followed by one in combustion chamber 15 and so, in alternation. The cyclic detonations in combustion chambers 14 and 15 produce high pressure gases that expand, and via the respective nozzles 16, 17, kinetically impact and expand across respective ones of the blades of the turbine wheel 11, thereby turning the drive shaft 12 to provide rotary output to the power take-off unit 35. The power take-off unit 35 turns the alternator 37 that generates DC power via the voltage rectifier 31 and voltage regulator 28 to maintain a full charge on the battery 36, and provides continuous AC power to the high voltage transformers 44,41. The air blower 48 rotation is sustained by the drive shaft 12.

By preference, the rotary blower 48, produces static air pressure in the range of 3.5 to 15 pounds per square inch gauge, at the output side of the blower.

The gaseous fuel contained in the fuel tank 42 preferably comprises propane. However, other gaseous fuels such as hydrogen, acetylene, butane, compressed natural gas can be utilized. The liquid (wet) fuels contained in fuel tank 43 preferably comprises gasoline, however, other wet fuels such as diesel fuel, methanol, ethanol, or liquid natural gas can be utilized. The fuel delivery pressure (obtained by pressurizing the fuel tank and/or by using a wet fuel pump 52 and fuel vaporizer 53 for boosting fuel pressure in the fuel delivery line to the orifices 18,19) is preferably in the range of 7.5 to 20 pounds per square inch gauge, and at least slightly higher than the aforementioned air oxidizer pressure.

The high voltage transformers 40,41 preferably includes a 60 to 400 cycle, 120 volts AC, primary winding with a 15,000 volt AC center-tapped secondary winding with capacitors in parallel across each winding, creating an electrical tank circuit that oscillates at high frequency and supplies electrical power to the arc electrodes 22 and 23. Each 7,500 volt secondary transformer winding and capacitor network oscillates at 100,000 cycles per second at 40 milliamperes, delivering 300 joule to each of the arc electrodes 22,23.

Each arc electrode 22,23 produces electromagnetic radiation, both photolytic and radiolytic, from the high frequency plasma arc gaps. The density and power of the radiated photons and charged radiolytic particles produced by the arcs at electrodes 22 and 23 scatter throughout the chamber and the low pressure air fuel mixture, kinetically impact and split oxygen molecules. The oxygen atoms, oxidize the fuel molecules instantaneously throughout the chamber producing a detonation and high velocity shock waves through the chamber.

The pressure of the shock waves resulting from the detonations compress remaining inert gases in the chambers into high pressure masses. At the time of each detonation, the overpressure momentarily shuts off the air and fuel flow at respective orifice 18, 19 and venturi turbe 21,22. The compressed gases that exhaust via the respective directional nozzle 16,17 disposed in the firewall section 24,25 of respective combustion chamber 14,15 kinetically impact the elliptical blades in the peripheral cavities 13 on the outer radial surface of the turbine wheel 11. The turbine wheel 11 rotates on and turns the drive shaft 12 in the direction of the impact of the pressurized gas masses. The expanding gases expand over the tops of the turbine blades which are positioned on the radial surface of the turbine at intervals that permit impulse and expansion of the compressed gases into the expansion chamber 27, further accelerating the turbine. During the cut off period of orifice 18 and venturi 21, the blower air or other oxidizer is redirected via the manifold 47 to combustion chamber 15 via venturi 20 and fuel orifice 19 where the detonation process is repeated.

The blower 48 volume, manifold 47 volume, combustion chambers 14, 15 volumes and nozzles 16, 17 volumes are preferably balanced to produce an average displacement that results in fifteen detonations per second per chamber.

The mean inlet temperature at the outlets of nozzles 16 and 17 are the average temperatures of the compressed gases impacting the turbine 11 and elliptical bladed cavities 13 and are controlled by the number of detonations per second per chamber. The temperature drop across the turbine 11 is equal to the inlet temperature at the outlet of nozzle 16 less the outlet temperature at exhaust port 32, plus the inlet temperature at the outlet of nozzle 17, less the outlet temperature at exhaust port 33.

The speed of rotation of the turbine 11 during operation can be regulated by changing the fuel flow input into the combustion chamber 14 and 15 via orifices 18 and 19 with fuel valve 44. As the fuel is leaned, the detonations become less powerful, therefore slowing the turbine 11 and blower 48. As the fuel is enriched, the detonations become more powerful and the turbine 11 and blower 48 increases speed. The greater the range of the flammability of the fuel, the greater the range of control over the speed of the turbine 11 rotation.

Typical input requirements, at mean operating power, for the preferred embodiment of the system are as follows:

Fuel 0.3 pound propane per horsepower hour.

Air 5.3 pounds per horsepower hour.

This is about one-half the air and fuel needed per horsepower of output for Otto cycle and Diesel cycle piston engines, and about one-eighth that required for the same output by Brayton cycle turbine engines.

Operation of the Detonation cycle turbine is terminated by closing fuel regulator valve 44 and disengaging switch 46.

It is within the contemplation of the invention that a plurality of the turbines, all in the same block, or in a succession of blocks be constructed and jointly operated in the same manner to drive the same drive shaft 12.

Reiterating the cyclic operation, and the methods and apparatus utilized in the invention; the switch is engaged connecting the starter to the battery; the starter engages the flywheel and rotates the shaft, the power take-off, the air blower, and the alternator. Air is fed into the common manifold connecting the two combustion chambers. Gaseous fuel is injected into the venturis and mixed with air. The fuel-air mixture is injected into both chambers. Photolytic and radiolytic radiation produced by the plasma arcs across the high voltage electrodes in the chambers atomizes the oxidizer and produces a detonation in one of the combustion chambers. The overpressure of the first detonation, in the respective combustion chamber, momentarily shuts off the fuel and oxidizer flow at the combustion chamber input orifice and venturi tube and the fluid flow reverts to the opposing combustion chamber, via the manifold, where the second detonation occurs. The overpressure mass, compressed gases, products of the cyclic deonations, are cyclically exhausted via nozzles into elliptical bladed cavities on the peripheral surface of the turbine. After each detonation, the pressure in the respective combustion chamber and manifold drops below the air and fuel injection pressure on completion of exhausting the combusted gases via the nozzle, and a new charge of air and fuel is injected by the manifold and respective venturi tube, into the respective combustion chamber, and the detonation repeats. The impulse of the high-pressure high-velocity mass kinetically impacts the elliptical blades of the turbine forcing it to rotate. As the turbine rotates the compressed gases expand out of the cavity and across the periphery of the elliptical blades into the expansion chamber and out the exhaust pushing the turbine into faster rotation. The torque produced by the acceleration of the turbine and shaft is converted mechanically and/or electrically. Acceleration and torque are determined by various volumes of fuel-oxidizer mixes, volumes of combustion chambers and nozzles, number of combustion chambers and number and radius of turbines.

The invention may be further understood with reference to the concrete example, a prototype engine test, that is illustrated and graphically presented in FIGS. 3-7.

In FIG. 3, there is shown a turbine engine system of FIGS. 1 and 2, incorporated in an acceleration testing system, results of the operation of which are described below in relation to the charts shown in FIGS. 4-7.

The engine and test system used in the system of FIG. 3 had the following configuration:

BLOCK: Made of machined aircraft aluminum. Measured 14".times.14".times.14".

TURBINE ASSEMBLY: Two 6.7" diameter turbines, 3" wide, weight 19.35 lbs., each mounted on 2".times.26"- 10-lb. shaft supported by ball bearings. Total weight of turbines 38.7 lbs. Total weight of turbine assembly--48.7 lbs.

COMBUSTOR ASSEMBLY: Four 140 ci combustors connected by two crossover manifolds. Each combustor was fired by a single electrode powered by the electrical device described herein. Each had an exhaust nozzle orifice measuring 563/1000", with a cross-sectional area of 0.248378 square inches, a total of 0.9935 square inches for four nozzle orifices.

ENGINE ASSEMBLY TOTAL WEIGHT: Total weight: 262 lbs.

AIR SUPPLY ASSEMBLY: A Roots blower, driven by a 10 HP electric motor turning 1760 RPM, produces 17.5 lbs. of air/min., 231 SCFM.

FUEL SUPPLY ASSEMBLY: Two 30-lb. propane tanks with pressure regulators and control valves supply fuel to each combustor via an intake port on each manifold. For safety, only two combustors were fuel by each tank by separate fuel lines. Mean combustion heat of the propane was 20,500 BTU/lb.

TEST EQUIPMENT: A standard pounds scale was used for weighing propane tanks. A Photo-Tachometer was used to measure motor and Roots blower RPM and shaft RPM of the engine. A stop watch was used for timing acceleration run time. A pyrometer was used for measuring inlet gas temperatures at nozzles and outlet temperatures at exhaust.

COMBUSTION OVERPRESSURE ACCELERATION OF TURBINE ASSEMBLY FROM 0 RPM

Atm Temperature: 88.degree. F. Aim Pressure: 14.7 psia

Fuel tanks were weighed.
Fuel tank #1 weight: 51 lbs., 2 oz.
Fuel tank #2 weight: 51 lbs., 4 oz.
Both fuel tanks were then connected to their respective fuel lines.

The power switch was engaged, activating the air supply assembly, producing 17.5 lbs. of air/min., 231 SCFM, at a velocity of 558 fps at 1.2 Atms.

Simultaneously, the ignition switch was engaged; the fuel valves on both tanks were opened; and the stop watch was started. The engine shaft acceleration was measured by the photo-tachometer at 30, 60 and 90 second intervals. At an elapsed time of 90 seconds, the shaft RPM was recorded at 12,587 RPM. The fuel valves were closed. The ignition switch was turned off. The air supply assembly continued to operate for 3 minutes, cooling the engine. The air supply assembly was switched-off and the turbines wound down to stop.

Engine Shaft 0-8,270 RPM 0-11,237 RPM 0-12,587 RPM Acceleration

Acceleration Time 30 sec. 60 sec. 90 sec.
The fuel lines were disconnected and the fuel tanks weighed.
Fuel tank #1 weight: 50 lbs., 6 oz.
Fuel tank #2 weight: 50 lbs., 12 oz.
Total Fuel Consumed in 30 Seconds: 0.50 lbs.=0.01666 lb./sec.
Total Fuel Consumed in 103 Seconds: 1 lb., 4 oz.
Nozzle Inlet Temperatures initial 1792.degree. F. Final 1544.degree. F.
Exhaust Outlet Temperatures initial 360.degree. F. Final 842.degree. F.

MEASURED ACCELERATION TEMPERATURE DROP IN WORKING FLUID ACROSS TURBINES

Nozzle inlet Temperatures:

Initial Temperature=1792.degree. F.
Final Temperature=1544.degree. F.

Exhaust Outlet Temperatures:

Initial Temperature = 360.degree. F.
Final Temperature = 842.degree. F.
Total Temp. Drop Across Turbines -- 4 Nozzles to 4 Exhaust
Initial Drop = 5728.degree. F. Final Drop=2808.degree. F.
Average Total Temp. Drop Across Turbines -- 4 Nozzles to 4 Exhaust
Average Drop = 4268.degree. F.

THERMAL--THERMOKINETIC--HORSEPOWER EQUIVALENTS TO TOTAL TEMPERATURE DROP IN WORKING FLUID ACROSS TURBINES

Thermal Equivalent (TE)

Temp. .degree.F..times.Working Fluid lbs./sec..times.Working Fluid Sp.

Heat in BTU/lb/.degree.F.

TE = 4268.degree. F..times.0.30832 lbs./sec..times.0.2095 BTU/pound/.degree.F.=275.68 BTU/sec.

Thermokinetic Equivalent (TKE)

BTU/sec..times.lbft/BTU

TKE = 275.68 BTU/sec..times.778 lbft/BTU = 214,479 lbft/sec.

Horsepower Equivalent (HP)

Thermokinetic lbft/sec..div.lbft/sec./Horsepower ##EQU1## See FIG. 4.

MEASURED ENGINE SHAFT ACCELERATION PRODUCED BY WORKING FLUID OVERPRESSURE DRIVING TURBINES

Angular Acceleration (a)
a = Angular Speed w.div.Acceleration Time t

1) w=8,270 RPM.times.6.283 Radians/Rev=51,960 Radians/min.
a = w/t = ##EQU2## =1732 Radians/sec/sec

2) w =11,237 RPM.times.6.283 Radians/Rev = 70,602 Radians/min.
a = w/ = ##EQU3## = 1177 Radians/sec/sec

3) w =12,587 RPM.times.6.283 Radians/Rev = 79,084 Radians/min.
a = w/t ##EQU4## = 879 Radians/sec/sec See FIG. 5.

ACCELERATION TORQUE AND SHAFT HORSEPOWER PRODUCED BY WORKING FLUID OVERPRESSURE DRIVING TURBINES:

TORQUE (T)

T = Turbine mass (m).times.Turbine Radius Squared (r.sup.2).times.Shaft Accel (a)

1) T = mr.sup.2 a=1.209 lbsec.sup.2 /ft.times.0.279 ft.sup.2 /Rad.times.1732 Rads/sec/sec
T = 163 lbft

2) T = mr.sup.2 a = 1.209 lbsec.sup.2 /ft.times.0.279 ft.sup.2 /Rad'1177 Rads/sec/sec
T = 111 lbft

3) T = mr.sup.2 a = 1.209 lbsec.sup.2/ft.times. 0.279 ft.sup.2 /Rad.times.879 Rads/sec /sec
T = 83 lbft ##EQU5##

style="margin: 5pt 0.5in 0.0001pt; text-align: center;">

John R. R. SEARL

Searl-Effect Generator

Searl-Effect Generator : Design & Manufacturing Procedure

by

S. Gunnar Sandberg

(School of Engineering & Applied Sciences, University of Sussex)

June 1985

The objective of this report is to reconstruct the experimental work carried out between 1946 and 1956 by John R. R. Searl that concerns the geometry, materials used, and the manufacturing process of the Sear1-Effect Generator (SEG).

The information given here is based on private communication between the author and Searl and should be considered preliminary as further research and development may give reason to alter and/or update the content.

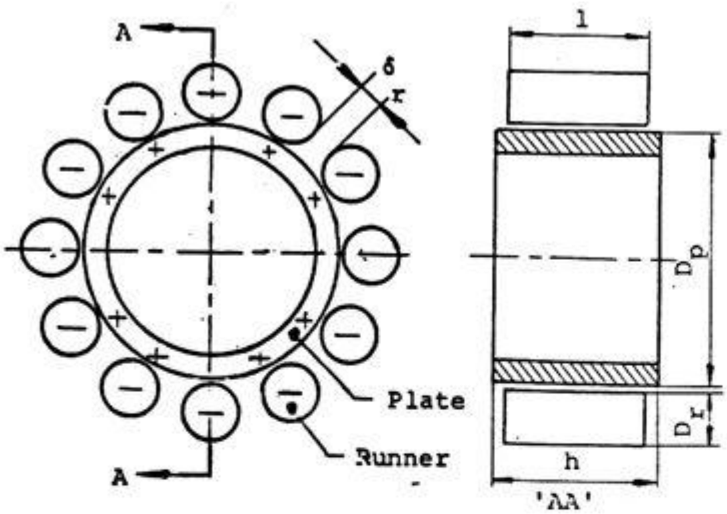
The Gyro-Cell

The SEG consists of a basic drive unit called the Gyro-Cell (GC) and, depending on the application, is either fitted with coils for generation of electricity or with a shaft for transfer of mechanical power. The GC can also be used as a high voltage source. Another and important quality of the GC 1s its ability to levitate.

The GC can be considered as an electric motor entirely consisting of permanent magnets in the shape of cylindrical bars and annular rings.

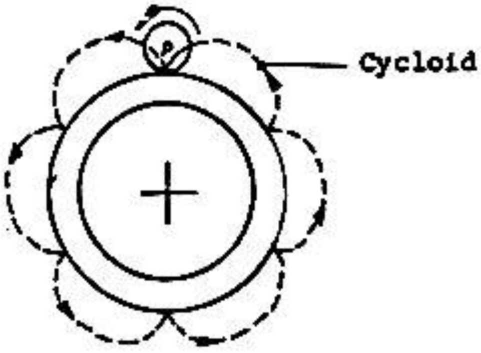
Figure 1 shows the basic GC in its simplest form, consisting of one stationary annular ring-shaped magnet, called the plate, and a number of moving cylinder-shaped rods called runners.

Figure 1



During operation each runner is spinning about its axis and is simultaneously orbiting the plate in such a manner that a fixed point p on the curved runner surface traces out a whole number of cycloids during one revolution round the plate, as shown by the dotted lines in Figure 2.

Figure 2



Measurements have revealed that an electric potential difference is produced in the radial direction between plate and runners; the plate being positively charged and the runners negatively charged, as shown in Figure 1.

In principle, no mechanical constraints are needed to keep the GC together since the runners are electromagnetically coupled to the plate. However, used as a torque producing device, shaft and casing must be fitted to transfer the power produced. Furthermore, in applications where the generator is mounted inside a framework, the runners should be made shorter than the height of the plate to prevent the runners from catching the frame or other parts.

When in operation, gaps are created by electromagnetic interaction and centrifugal forces preventing mechanical and galvanic contact between plate and runners and thereby reducing the friction to negligible values.

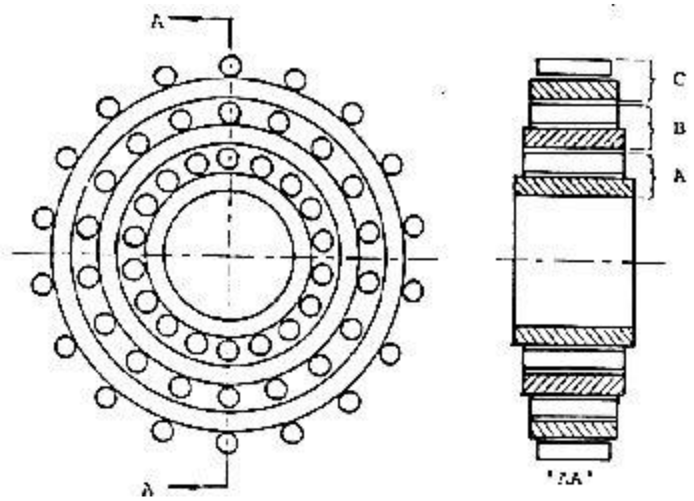
The experiments showed that the power output increases as the number of runners increase and to achieve smooth and even operation the ratio between external plate diameter Dp and runner diameter Dr should be a positive integer greater than or equal to 12. Thus:

(1) $P/D_r = N > 12$ ($N = 12, 13, 14,$ &c)

The experiments also indicated that the gaps O between adjacent runners should be one runner diameter D as shown in Figure 1.

More complex Gyro-Cells can be formed by adding further plates and runners to the basic unit. Figure 3 illustrates a 3-plate GC consisting of three sections, A, B and C. Each section consists of one plate with corresponding runners.

Figure 3



The experiments showed that for stable and smooth operation sections should be of equal weight. Thus:

(2) $W_A = W_B = W_C$

where

W_A = weight of section A,
W_E = weight of section E,
W_C = weight of section C.

The Magnetic Field Configuration

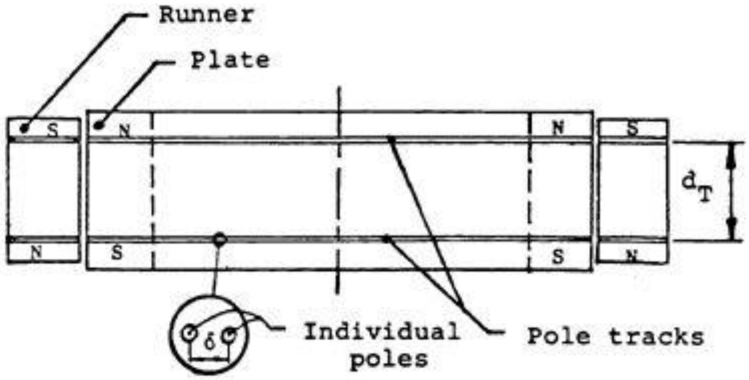
Due to a combined DC and AC magnetising process, each magnet acquires a specific magnetic pole pattern recorded on two tracks consisting of a number of individual N-poles and S-poles, as illustrated in Figure 4.

Magnetic measurements have revealed that the poles are approximately one millimetre across and evenly spaced. It was also found that the pole density (*x*) --- defined as the total number of poles N per track divided by the circumference, pi D --- must be a constant factor specific for a particular generator. Thus:

$x = N_p / 3.14\ D_p = N_r / 3.14\ D_r$

where N_p is the total number of poles per track on plate and N_r is the total number of poles per track on runner.

Figure 4



Furthermore, the distance d_r between the two pole tracks must be the same for all runners and plates which are parts of the same GC.

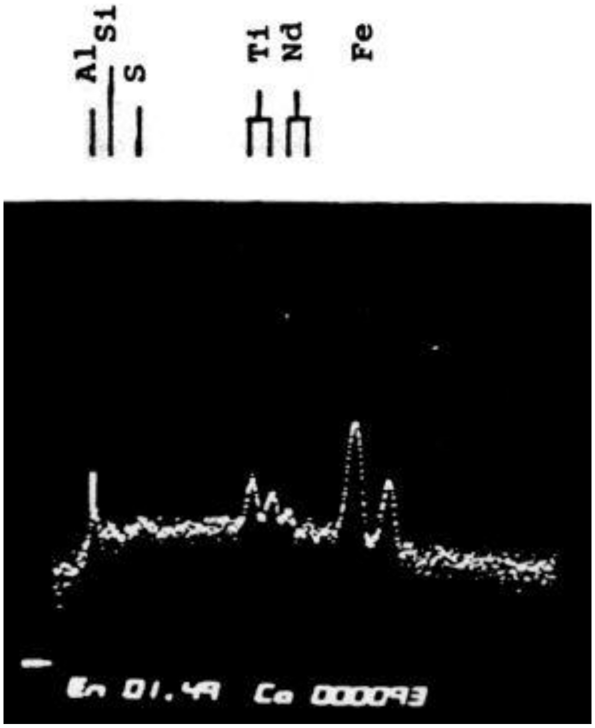
The pole tracks allow automatic commutation to take place and create a turning moment. Exactly how this is achieved is not understood and will require further research efforts.

Likewise, the source of energy is at present unknown. Further research is also needed to establish the exact mathematical relationship between output power, speed, geometry and material parameters, such as mass density and electromagnetic properties of the materials used.

Magnetic Materials

The magnets used in the original experiments were made of a mixture of two types of ferromagnetic powders imported from the USA. One of these magnets, still in existence, has been qualitatively analyzed and was found to contain the following elements: Aluminum, Silicon, Sulfur, Titanium, Neodymium, Iron. The spectrogram is illustrated in figure 5.

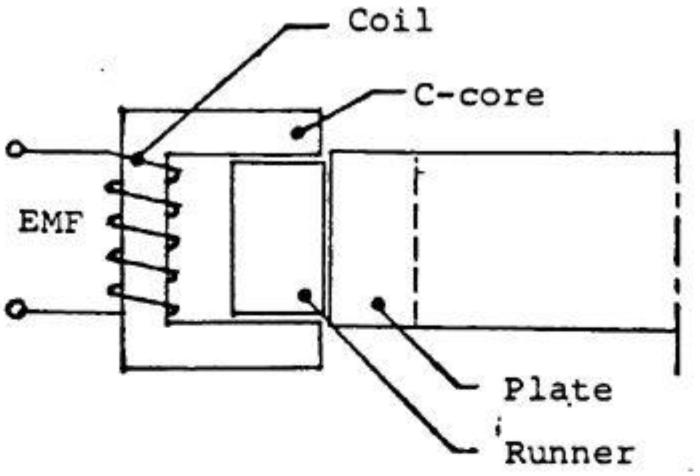
Figure 5



The Induction Coils

If the SEG is sued as an electrical power plant a number of induction coils must be fitted to the GC. The coils consist of C-shaped cores made of soft steel (Swedish steel) or high u-ferrite (mu-metal). The number of turns and wire gauge used depends on the application. Figure 6 shows the basic design.

Figure 6



Manufacturing Procedure

The block diagram in Figure 7 illustrates the main stages in the manufacturing process.

Figure 7

(1) Selection of Magnetic Materials >> (2) Weighing >> (3) Mixing >>
(4) Moulding >> (5) Machining >> (6) Inspection > (7) Magnetization >>
(8) Inspection >> (9) Assembly >> (10) Final Control.

Stage 1: Magnetic Materials & Bonding Agents

It is feasible that future research will reveal other magnetic raw materials to be cheaper and/or more efficient than the ones used in the original experiments. It is also possible that other types of binder may improve the performance.

Stage 2: Weighing

In general, to produce efficient magnets the right amount of each element contained in the ferromagnetic powder is crucial. It is therefore reasonable to suggest that when mixing different types of powders an optimal weight ratio does exist that will produce a 'best' magnet.

At present, however, this weight ratio is not known for the powders used by Searl in his past experiments. Together with new magnetic materials and optimization of generator geometry, this is an area in which research efforts could be profitable.

In general, the amount of binder used should be as small as possible to achieve maximum mass density of bonded magnets. However, the possibility that the binder is taking an active part in the generation of the Searl-Effect must not be excluded. For instance, the dielectric properties of the binder may play an active role in the electromagnetic interactions taking place in the SEG. If that is the case, then a further amount of bonding material may be beneficial.

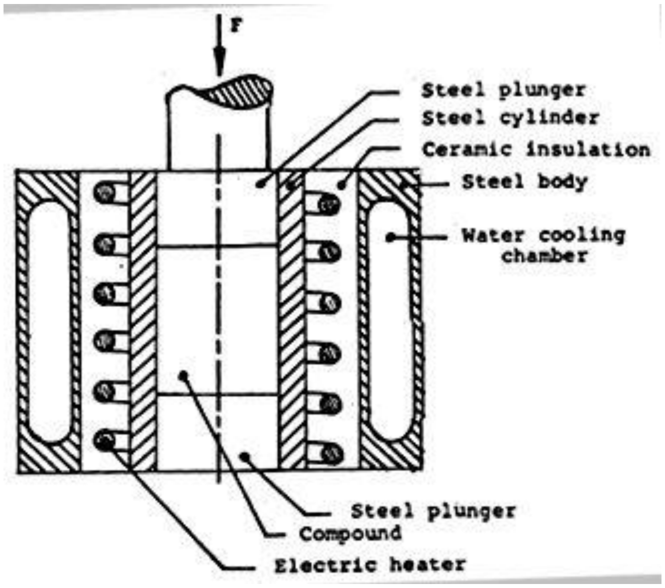
Stage 3: Mixing

The mixing is an important process which will decide the homogenity and reliability of the finished product. A homogeneous mixture can be achieved by using turbulent air flow inside the mixing container The experiments did show that an improved performance was achieved if all magnets for the same generator were made from the same batch.

Stage 4: Moulding

During the moulding process the compound- consisting of ferromagnetic powders. and thermoplastic binder is compressed and simultaneously cured by heating. Figure 8 illustrates the tool used for making 'blinds'. A 'blind' is an unmagnetized runner or plate/part of plate. When manufacturing large plates ($D_p > 30$ cm) it may be necessary to make them in segments rather than in one piece.

Figure 8



The figures given below should be considered as guidelines only, since correct data are not available regarding the influence of the moulding process on the Searl-Effect.

1. Pressure: 200-400 bars
2. Temperature: 150 C-200 C
3. Compression time: > 20 minutes.

Before releasing the pressure the mould must be allowed to cool.

Stage 5: Machining

This process can be bypassed if the weighing and moulding procedures are carried out correctly. However, it may be necessary to polish the cylindrical surface of runners and plates.

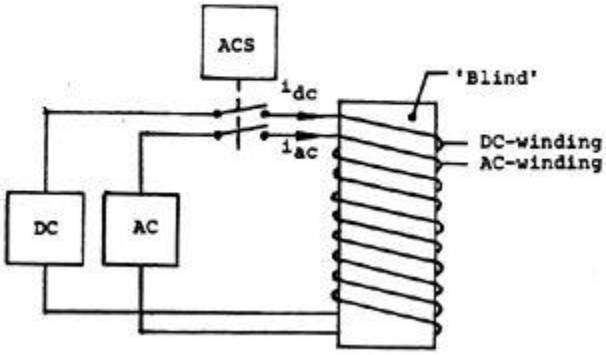
Stage 6: Inspection

Control of dimensions and surface finish.

Stage 7: Magnetization

Runners and plates are individually magnetized in a combined DC and AC-field during one on-off duty cycle. Figure 9 illustrates the magnetizing circuit.

Figure 9



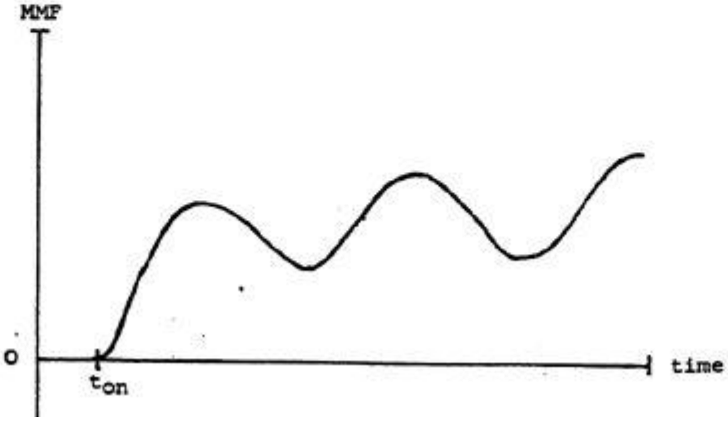
The function of the automatic control switch (ACS) is to simultaneously switch on the DC-current, i_{dc} and the AC current, i_{ac} at such a time, $t = t_{on}$, that the instantaneous value of the total magnetomotive force (MMF) is always positive. Thus:

$$MMF = i_{dc}N_1 + i_{ac}N_2 \geq 0$$

Where N_1 is the number of turns in the DC-winding and N_2 is the number of turns in the AC winding.

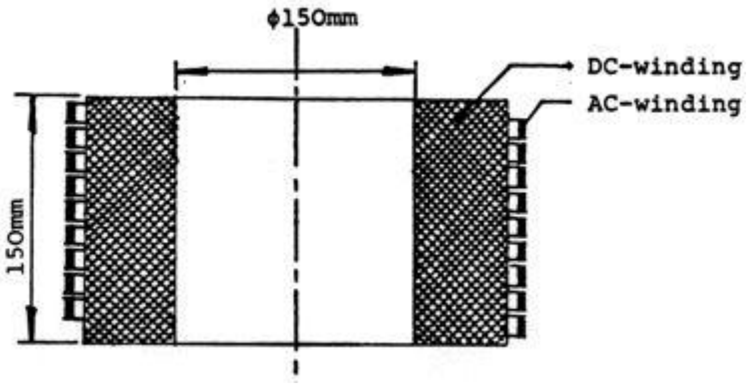
Figure 10 shows the total MMF as a function of time.

Figure 10



The magnetization coil consists of a DC winding containing approximately 200 turns of heavy copper wire and an AC winding containing approximately 10 turns of copper strip wound on top of the DC winding. Figure 11 shows a cross-section of the coil and its dimensions.

Figure 11



Recommended parameter values:

DC current, i_{dc} = 150 A to 180 A

AC current, i_{ac} = 0.1 to 0.2 A

Frequency, f = 1-3 MHz

Stage 8: Inspection

The purpose of this control is to test for the existence of and the correct spacing of the two pole tracks. The measurements can be made with a magnetic flux density meter in combination with a set of control magnets.

Stage 9: Assembling

The assembling procedure depends on the application. Used as a mechanical drive unit, the magnets must be mounted inside a framework and fitted to a drive shaft. Used as an electric power plant, induction coils must be fitted to the framework.

The Searl Effect & The Searl-Effect Generator

(Reconstruction of the experimental work carried out by John Searl between 1946 and 1952
concerning the claimed discovery of a new source of energy)
by

S. Gunnar Sandberg
(17 June 1987)

Preface

Introduction
The Manufacturing Procedure of the Permanent Magnets
The Magnetising Equipment used by Searl
A Novel Magnetising Method
Generator Geometry
The Discovery of the Searl-Effect & Invention of the Searl-Effect Generator
The 3-Ring Generator & the Searl-Levity Disc
Appendix A: Analysis of the Searl-Magnet
Appendix A2: Additional Tests & Measurements on the Searl Magnet

Preface

This report is based on a series of interviews given by John R.R. Searl on a number of occasions since 1982 and contains information and data concerning the experimental work on permanent magnets carried out by him between 1946 and 1952. The experiments resulted in the claimed discovery of a new source of energy, the so-called Searl-Effect (SE) and the invention of a new permanent magnet machine, the so-called Searl-Effect Generator (SEG) to utilize this effect. The report also contains data and information regarding important tests and measurements made on the SEG, or part thereof, by Searl in cooperation with other research workers after the aforementioned time period.

It must be stressed that all documentation describing the experimental procedures and the equipment used was destroyed by fire in 1983. It is therefore not possible to give a detailed and accurate account of Searl's work.

Nevertheless, the information gathered is believed to contain enough data to allow a successful repetition of the experiments to be made.

The reconstruction of the equipment used has been a joint effort between Searl and the author, in particular the magnetizing coil and the switching equipment.

S. Gunnar Sandberg
(June 1987)

Introduction

In 1946, at the age of fourteen, John Roy Robert Searl began his employment as a trainee at the Midland Electricity Board (MEB) in Birmingham to become an electrical and electronics fitter. The MEB produced their own permanent magnets to be used in the manufacturing of energy-meters and other electrical instruments. This work was carried out in the electronics workshop where Searl was a trainee. Soon, Searl became involved in the production of permanent magnets and gradually learned the manufacturing procedures and how to use tools and the necessary equipment. Also, the management gave him permission to use the research laboratory for his experiments which were considered to be part of his training. It was in this environment Searl began his experimental work on permanent magnets that eventually culminated with the discovery of a new magnetic effect.

Searl's original idea was that free electrons in spinning metal bodies may have a tendency to move in the radial direction due to inertial forces. If this hypothesis was correct then an electric potential difference should develop between the center and periphery of a rotating shaft and between the inner edge and the rim of a slip ring. He also held the view that the electromotive force induced in spinning bodies due to the earth's magnetic field could be used for generating electric energy. Accordingly, Searl's first series of experiments consisted of careful measurements on fast rotating steel shafts and slip rings made of brass and indeed he was able to show the existence of a minute electric voltage in the radial direction. If this voltage was due to the inertial properties of the electrons or induced by the magnetic field of the earth was never established. However, it soon became evident that this simple generator would only be practically useful if means could be found to increase the power output.

At this stage in the experimental work any person with a formal education in electrical engineering would have considered the principle unworkable and the effect an academic curiosity without practical applications. However, Searl was not so easily discouraged and began experiments with rotating permanent magnets manufactured by him using a magnetic material(l) made by Mullard UK and later using magnetic alloys imported from the USA. These alloys proved to be superior compared with the magnetic material manufactured by Mullard (Whether or not this material was a ferromagnetic alloy or a ferrite s not known). The use of permanent magnet material resulted in a considerable improvement and by now Searl was convinced that this simple principle could be used to generate electricity. Whether Searl's choice of magnetic materials was a deliberate experimental strategy or a coincidence is not known, but in due course the use of these materials did lead to unexpected effects.

The Manufacturing Procedure of the Permanent Magnets Used by Searl

During the early part of his training period Searl manufactured a great number of permanent magnets in the shapes of cylindrical bars, hollow cylinders, annular rings and rectangular rods.

The magnets were moulded by pressing a mixture of magnetic powder and a bonding agent. For this operation a hydraulic press with appropriate press tools was used. The work was carried out inside a vacuum chamber to prevent explosion. Moulds made of bakelite were also used and the mixture of magnetic powder and binder was packed by hand into the bakelite mould and the whole assembly placed into the vacuum chamber with the intention of removing the air from the mixture and increasing the mass density of the magnets. However, this method was less efficient than using the hydraulic press which produced better and denser magnets. The curing of the moulded cores could sometimes take as long as three days. This suggests that curing took place at room temperature and a liquid binder was used. In later experiments Searl successfully used nylon (thermoplastic) with an excess of negative charges. These charges appear to have taken an active part in the production of the Searl effect.

Two types of magnetic alloys and bonding agents were imported from the USA by Searl. This material was paid for by George Haynes of Turner Street, West Bromwich, who financially supported Searl's experimental work between 1946 and 1948; the reason being that Mr. Haynes' son and Searl made the experiments together.

A magnet produced in 1946 by a mixture of the two alloys was analyzed qualitatively in 1984 and found to contain the following elements: Aluminium, Silicon, Sulphur, Titanium, Neodymium, Iron.

The precautions taken by Searl when handling the highly flammable element neodymium and details concerning the moulding process have never been properly investigated. Likewise, the identities of the American suppliers of the magnetic alloys have not yet been established.

Further information regarding the magnet specimen is found in Appendix A.

The Magnetising Equipment Used by Searl

The coil used by Searl to magnetise the moulded cores was originally intended for and used to demagnetise (degaussing) turbine shafts and generator shafts and consisted of approximately 200 turns of heavy electric copper wire normally used for connecting electric cookers to the mains. The magnetising current used was 180 amperes and supplied by a Westinghouse three-phase mercury rectifier. The on-off switching operation was carried out manually using a high current switch and the on-off duty cycle lasted for seconds rather than fractions of a second. More information regarding the coil can be found in the report SEG-002.

A Novel Magnetising Method

Based on what can only be described as intuition, Searl suggested that a second winding should be added to the existing magnetizing DC-coil and connected to an AC-source. This proposition created heated discussions amongst his fellow workers as to the effect of such a magnetising method. The general view was that the magnetic field created by an alternating current would partly cancel the magnetic field created by the direct current and make the coil less efficient. However, Searl suggested that the existing RF-signal generator in the laboratory should be used as an AC-source; this would prevent cancellation of the DC-field. This idea was met with an even greater scepticism as the current supplied by the signal generator would be minute and have insignificant effect on the magnetising process. Searl persisted, however, with his views and eventually succeeded in winning his manager's approval for the idea. Searl can remember his manager carrying out certain calculations concerning the design of the AC-winding. These calculations were at the time beyond Searl's comprehension and no information is any longer available regarding their nature. The exact number of turns in the AC-winding remains unknown despite a considerable effort on Searl's part to recall the details concerning the coil. However, based on fundamental electrical engineering it can be assumed that the calculations involved resonance (to maximize the number of ampere-turns in the AC winding, parallel resonance should be used) and characteristic impedance determinations with the intention of avoiding shorting out the signal generator. It is, therefore, reasonable to suggest that these calculations can be repeated and a reconstruction of the AC-winding can be made.

The switching equipment consisted of two hand-operated switches which had been mechanically interlocked; one switch for the DC-current and the other switch for the AC-current.

Generator Geometry

Exactly when Searl decided to use the 'roller bearing' geometry as a model for his generators is not known and will require further investigation. However, it must have been very early in his career, probably as early as 1946. The inertial and the gyroscopic effects of a fast spinning ball-race intrigued him and Searl used to release fast rotating ball-races and study their behaviour when they dissipated the kinetic energy through collisions with surrounding objects. It was most certainly the result of these experiments that inspired him to use this configuration for his generators.

The Discovery of the Searl-Effect and the Invention of the Searl-Effect Generator

Equipped with these new ideas concerning geometry and magnetizing methods, Searl started to make generators consisting of a single annular ring surrounded bya number of rollers. By keeping the ring stationary and forcing the rollers to spin about their own axis and simultaneously revolve around the ring by driving them with an electric motor, the generators produced voltages in excess of 30 kilovolts. However, it was not always that Searl was successful in producing such high voltages. Since he did not know the mechanism responsible for the effect, it was very much a matter of trial and error to reproduce the magnets. Sometimes the failure rate was very high, seventy percent or more; out of a batch of a hundred (100) magnets only thirty (30) would work. The reason for this was never established with certainty, but it is believed to have been caused by the primitive switching equipment used.

The Searl-Effect

At a certain critical speed some of the generators would suddenly lock in to a mode of operation that appeared to be some kind of positive feedback and they would run spontaneously without any mechanical connection to the driving motor. In the beginning Searl could not control this effect at all.

Later, he found that by loading the generators electrically it was possible to reduce the speed, but once this state of operation had been reached the generators could not be stopped. However, it is possible that if appropriate test equipment had been available Searl would have been able to bring the generators to a halt by loading them either electrically or mechanically. It must be pointed out that Searl did not have the financial support required to carry out such comprehensive and dangerous tests and even if he had access to the workshops and the laboratory at the MEB, where such tests could have been made, he was certainly not allowed to carry out dangerous experiments on the MEB's premises.

As the experimental work progressed Searl succeeded in reducing the critical speed to a value close to zero by a careful design and by increasing the number of rollers, and eventually he was able to produce a generator that was self starting. Searl discovered that when the generators were running the air pressure decreased in the immediate vicinity of and inside the generators. At voltages above thirty kilovolts the air motion was directed away from the rim of the generators, and candle light that had been placed at the centre of the generator ring went out due to lack of oxygen. This decrease of the air pressure could explain the absence of flashover between the ring and the rollers. Searl also discovered that the temperature dropped considerably close to and in the interior of the generators, probably due to the transport of air away from the generator. Another interesting effect was that objects placed inside the generator ring lost their weight. The existence of these effects were later confirmed by use of proper measuring equipment.

The Searl-Effect Generator

Three different systems were developed to extract the energy produced by the SEG; one mechanical system and two electrical:

(1) The mechanical system: The details concerning the mechanical drive system are not known and are yet to be investigated.

(2) The high voltage system: This system was originally developed for measuring the electric potential difference generated between the stationary ring and the moving rollers. The positive generator terminal was fitted to the ring and the negative terminal consisted of a number of parallel-connected comb-shaped electrodes mounted around the generator periphery and in close proximity to the rollers, as shown in Figure 1.

(3) The low voltage system: By fitting a number of stationary c-shaped induction coils around the rim of the generator, as shown in Figure 2, and connecting them in series or parallel, or a combination of both, the SEG produced electric power of its own (~ 10^2 watts).

Several small generators of this type were manufactured and by 1952 Searl had built the first multi-ring generator.

Figure 1

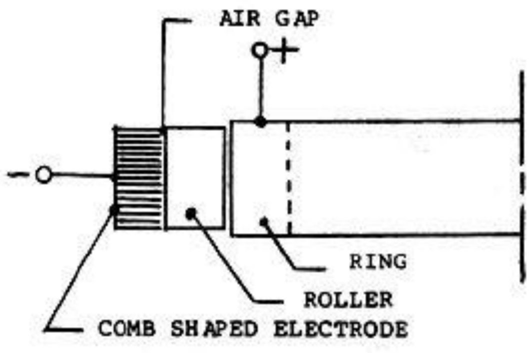
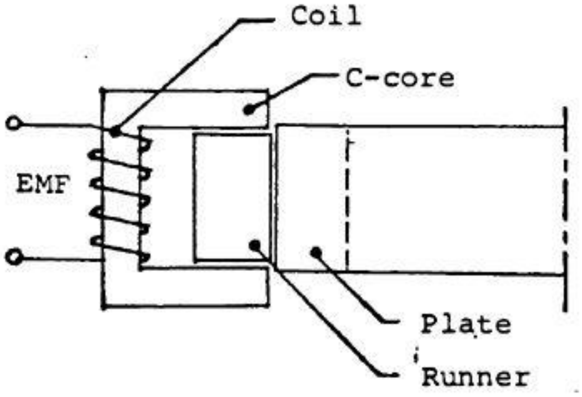


Figure 2



The 3-Ring Generator & the Searl-Levity Disc

This device was about three feet in diameter and consisted of three segmented rings in the same plane, with a number of induction coils at its periphery (Details regarding this device can be found in the report SEG-001, October 1982). Each ring consisted of a number of magnetic segments with insulating spacers between each such magnet. Due to high cost, this generator did not contain enough roller-magnets to be self-starting.

The generator was tested by Searl and a friend of his in the open and the armature was set in motion by a small engine. The device produced an unexpectedly high electrostatic potential in the radial direction. At relatively low armature speeds a very high voltage was produced and indicated by static effects on nearby objects. Characteristic crackling and the smell of ozone supported the conclusion.

The unexpected then occurred. The generator lifted while still speeding up, broke the union between itself and the engine, and rose to an altitude of about 50 feet. Here it stayed for a while, still speeding up and surrounded itself in a pink halo. This indicated ionization of the air at a much-reduced pressure.

Another interesting side effect caused local radio receivers to go on of their own accord. This could have been due to ionizing discharge or electromagnetic induction. Finally, the whole generator accelerated at a fantastic rate and is believed to have gone off into space.

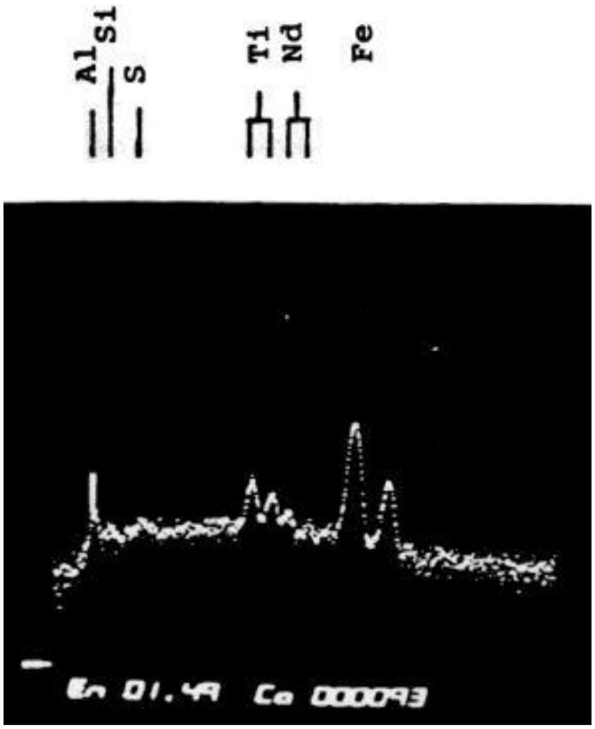
Since 1952, Searl and his co-workers have manufactured and tested more than 10 generators, the largest being a 10-meter disc-shaped craft, the so-called Searl-Levity Disc (SLD). Figure 3 shows a smaller version of the SLD.

Figure 3: Searl Levity Disc [Not available]

Appendix A: Analysis of the Searl-Magnet

The magnet specimen supplied by Searl was analyzed by Roger Cheese (a material science technician at the School of Engineering & Applied Sciences, Univ. of Sussex)) on April 16, 1984, using Energy Dispersive X-Ray Analysis, the so-called EDAX-spectrum, and found to contain the following constituent elements, as shown in Figure Al.

Figure A1: EDAX-Spectrum



The EDAX-spectrum also contains information concerning the quantity of each constituent element.

Although this data is inadequate for an exact quantitative analysis, it is considered accurate enough for an acceptable estimation to be made. This work will require expertise and financial support.

According to information received from Dr. Anthony Simpson(a retired materials scientist and a former lecturer in the School of engineering & Applied Sciences, Univ. of Susses) the element neodymium was most certainly included to reduce the oxygen content and prevent it from having an adverse effect on the magnetic properties of the alloy. There is the possibility that the neodymium was a contamination but that is less likely. In either case the percentage neodymium was probably less than 10% by weight (5% by weight is most likely).

The dimensions and the magnetic polarity of the magnet specimen on which the tests were carried out are shown in Figure A2.

Figure A2: Dimensions in mm

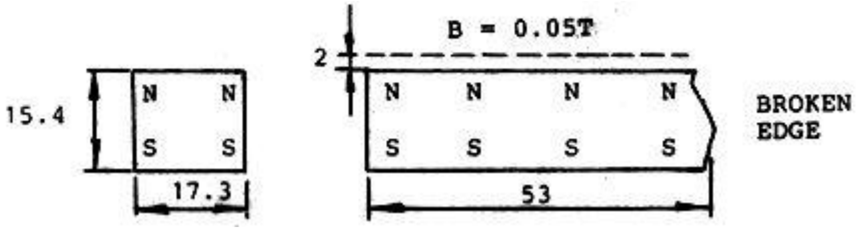
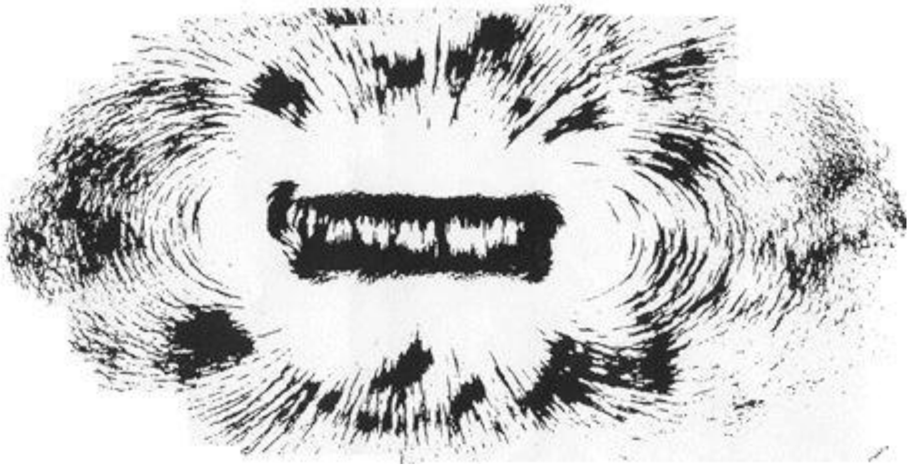


Figure A3 shows the magnetic flux pattern obtained by use of iron filings. The magnet was identical to one of the bar magnets demonstrated by Searl on August 15, 1982, as shown in the report SEG-001. At the time of testing (April 1984) the magnet had been accidentically broken during transport.

Figure A3: Magnetic Flux Pattern



Appendix A2: Additional Tests & Measurements on the Searl Magnet

The magnetic flux density, measured approximately two mm from the pole faces (Figure A2), was 0.05 Tesla or 500 gauss using a standard magnetic flux density meter with Hall-Effect probe (Magnetometer D11, Scientifica & Cook Ltd, London)

The existence of the "recorded" pole pattern could not be confirmed using the aforementioned flux density meter. Such tests would have required a more sensitive instrument.

Other physical parameters:

Total weight: 67.6 gr
Total volume: 14.1 cm3
Mass density: 4.79 g/cm

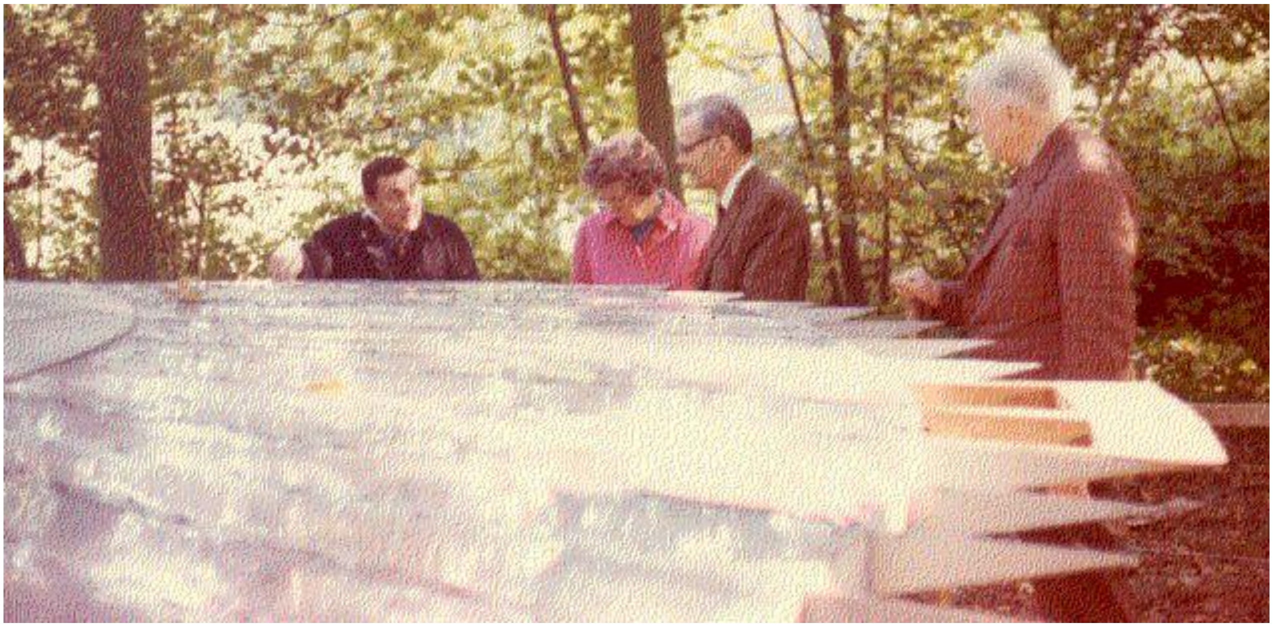
Figures A4 and A5 show two electron micrographs revealing the surface structure of the sample used for analysis at magnifications of X1000 and X4400 respectively. [Not available]

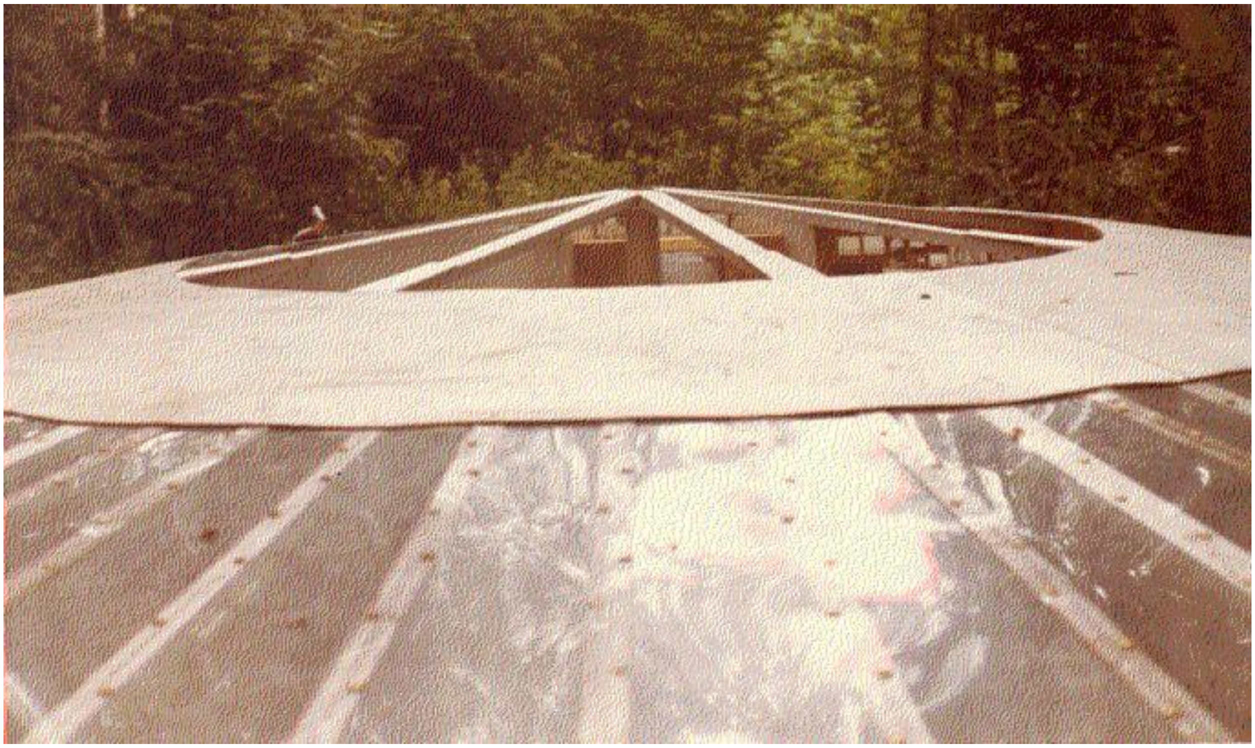
At the time of testing (April 1984), lack of funds and other duties prevented additional important measurements from being made. The magnet was therefore returned to Searl with the intention of borrowing it at a future date for further investigation. However, upon later request the author was informed by Searl that all magnets in his possession had been lost.

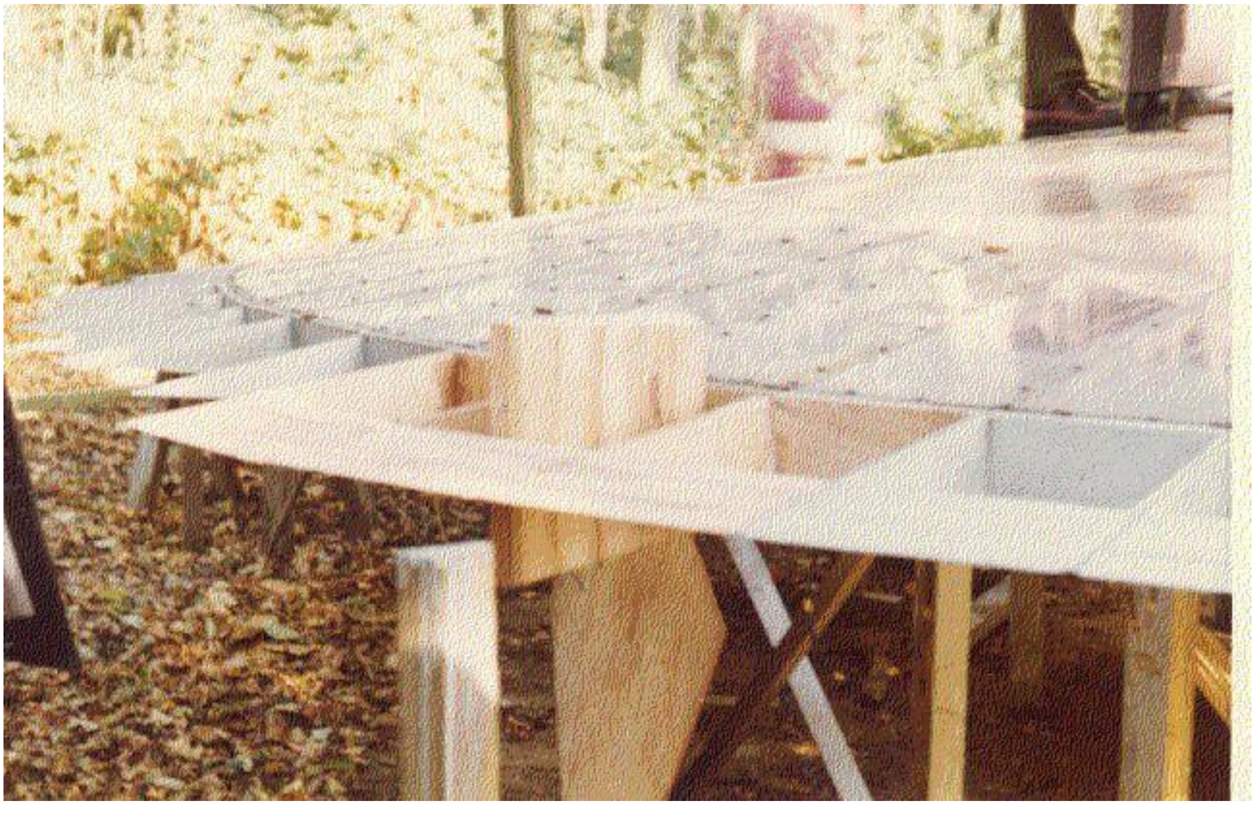
John R. SEARL

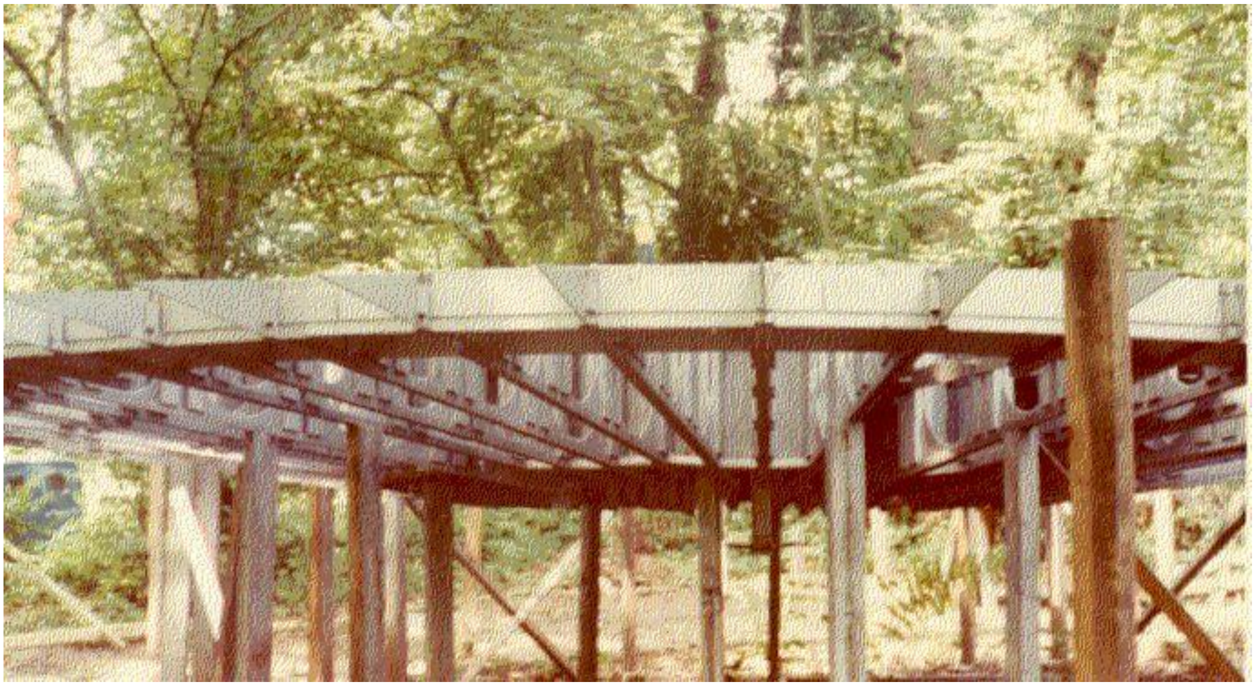
Levitation Disc Photos

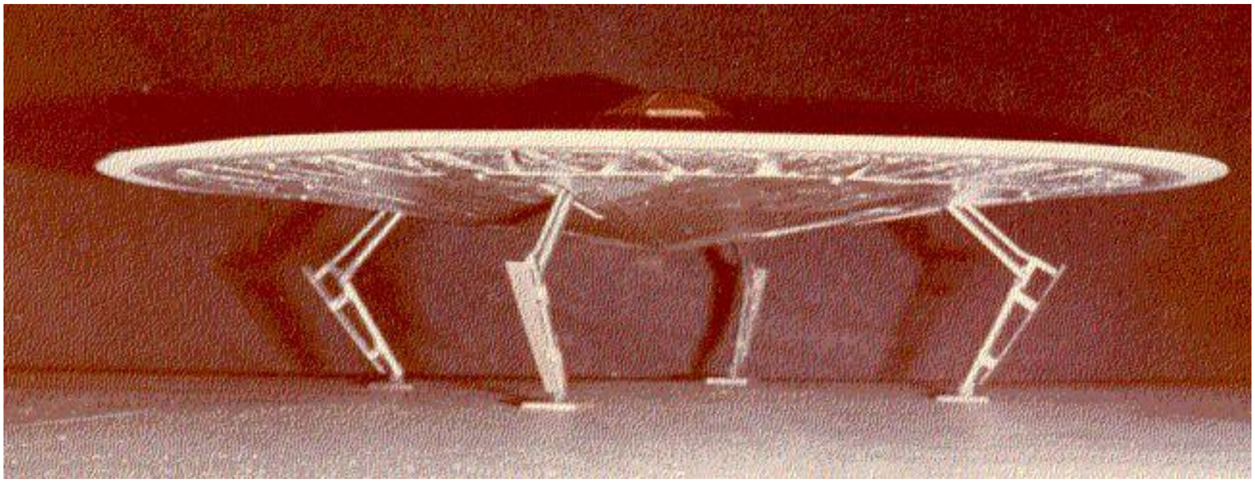
I was Searl's "Superintendent of Documents" for a while in the late 1960s. Here are some rare photos of his attempt to construct a "Levity Disc" in the woods of Sussex in the early 60s. Also shown are photos of a model that he used to generate fake composite photos (with the help of a newspaper photographer) to illustrate some newspaper articles of the period. This is not to imply that Searl is a fraud. His work was replicated recently by Roshcin & Godin. Unfortunately for Searl, he has been suppressed by his government and others, but he may yet be vindicated.

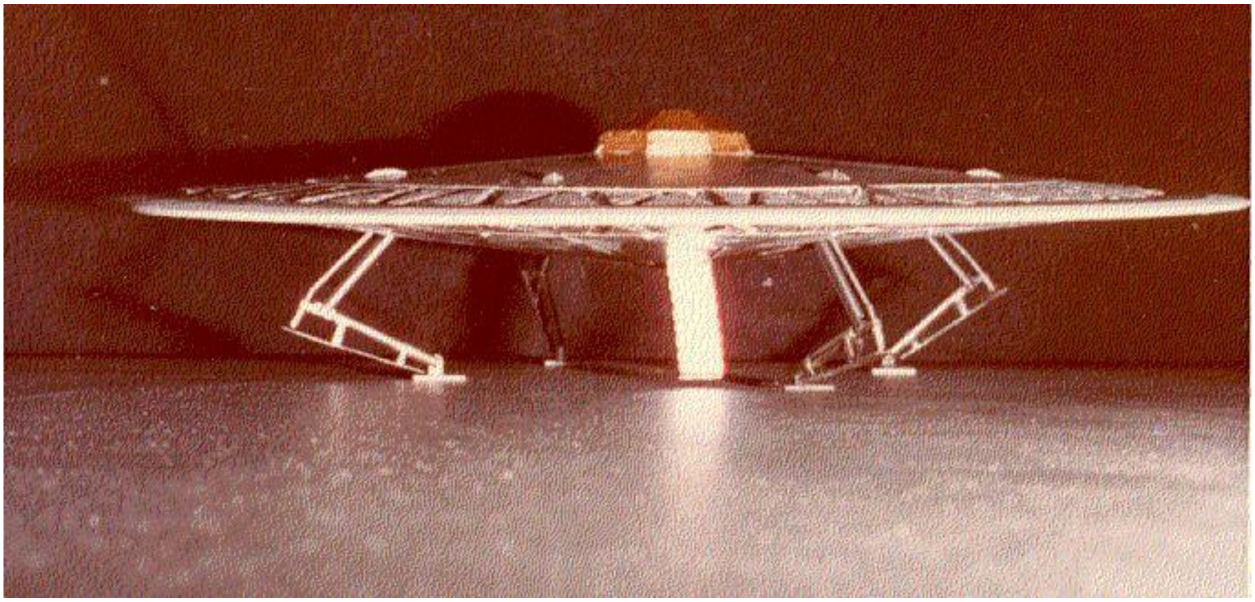


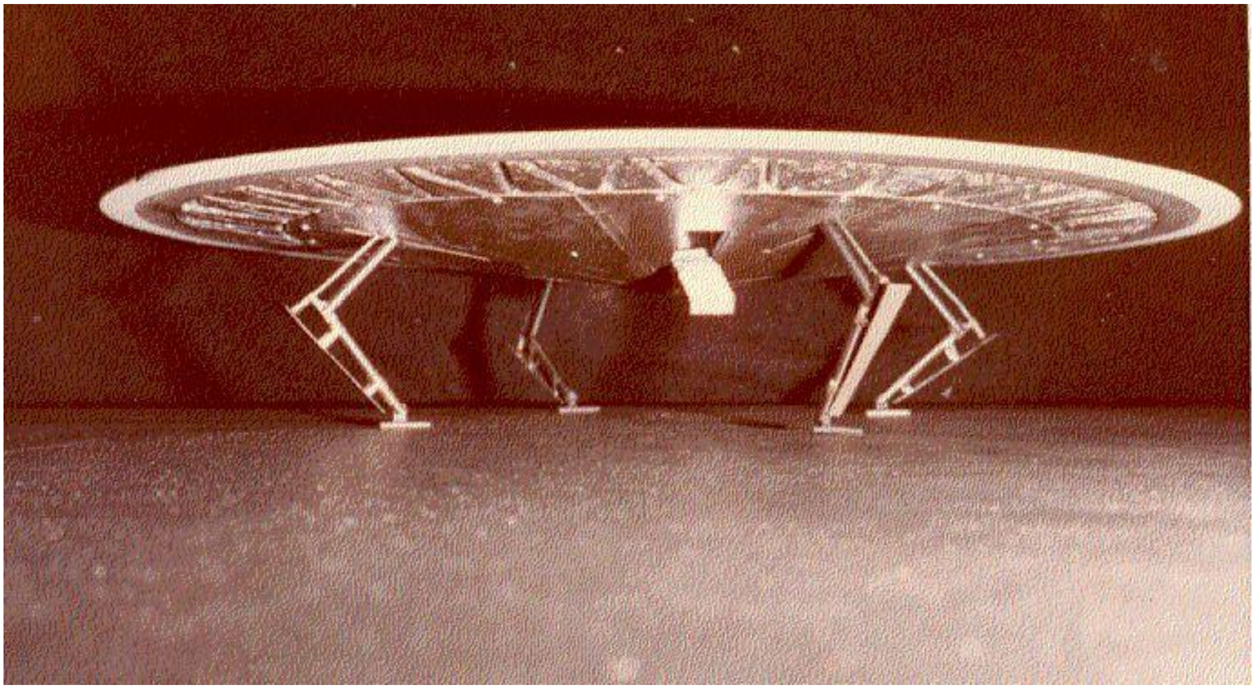


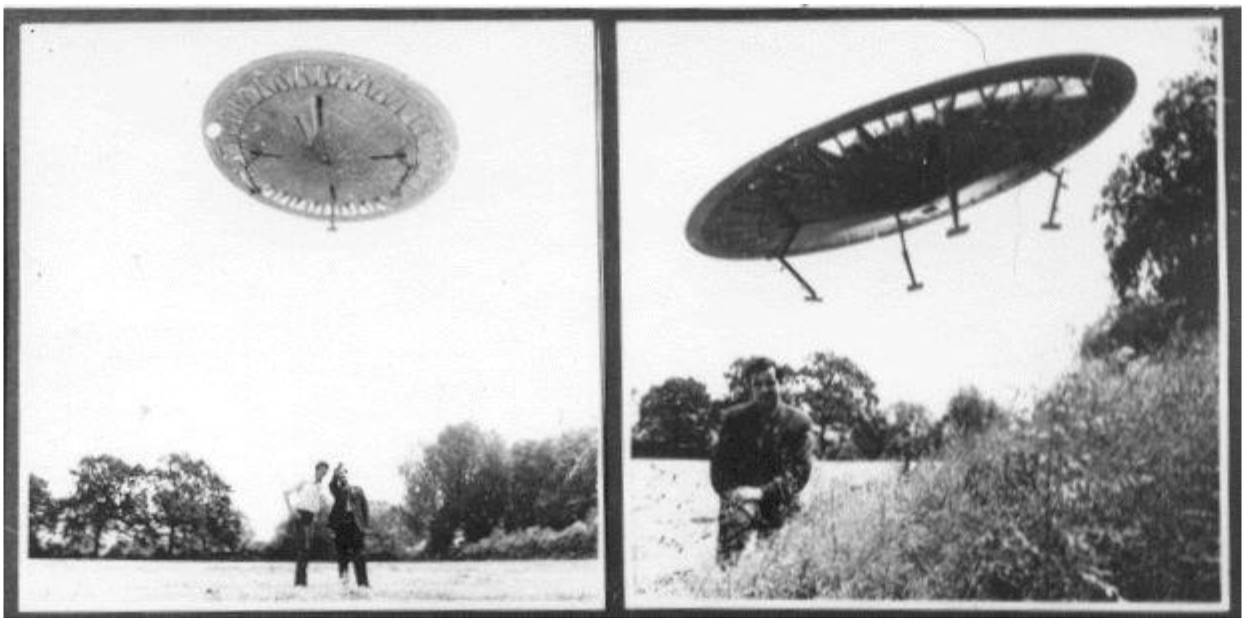












John SEARL

Searl Effect Generator

New Energy Technologies, Vol. 10 (1), Jan.-Feb. 2003, p. 47

[Excerpted from www.sisrc.com]

Background

The Searl Effect Generator (SEG) technology, as applied to the commercial market, had been previously developed to the point where a few prototype SEG generators were made, and used for electricity generation and motion. Commercial interest at that time focused on the SEG's transport potential and, under commercial pressure to deliver a fully functional system, the original generators were used and lost in a series of vehicular propulsion experiments and demonstrations. Funding was insufficient to continue with the manufacture of the required larger-scale pressurized cabin machines --- resulting in the termination of the project at that time.

Although all the operating principles, precise proportions and weights of the required materials are known for three of the four required operating materials, the precise data of the original magnetic layer is uncertain. The objective of the current R&D programme s to re-establish the original magnetic layer using modern and more efficient materials.

Originally, the layered materials were constructed and magnetized by the now-defunct Midlands Electricity board under the direction of John Searl.

Modern magnetic materials have advanced considerably, and old ones discontinued, so a series of tests need to be conducted to establish the optimum materials and processes, These tests need to comply with the working criteria required and must lead to a cost-effective manufacturing process.

In recent times SISRC has been re-establishing the original research. Due to the very limited funding that has been available, only a partially functioning demonstration prototype of the SEG principles has been possible. This prototype consists of the innermost of the three composite tings required and several rollers…

Technical Description

Physically the Searl Effect Generator (SEG) consists of three concentric rings each made of a composite of four different materials which are also concentrically attached to each other. The three rings are fixed to rotate around them, are rollers --- typically 10 on the first ring, 25 on the next, and 35 on the outer ring. Surrounding the rollers on the outer ring are coils which are connected in various configurations to supply either AC or DC current at a variety of voltages. Multiple magnetic poles are imprinted on the rings and rollers to form frictionless magnetic bearings. These also arrange the static charge into opposing charge clusters which cause the rollers to rotate around the circumference of the ring (as shown in Figure 2)

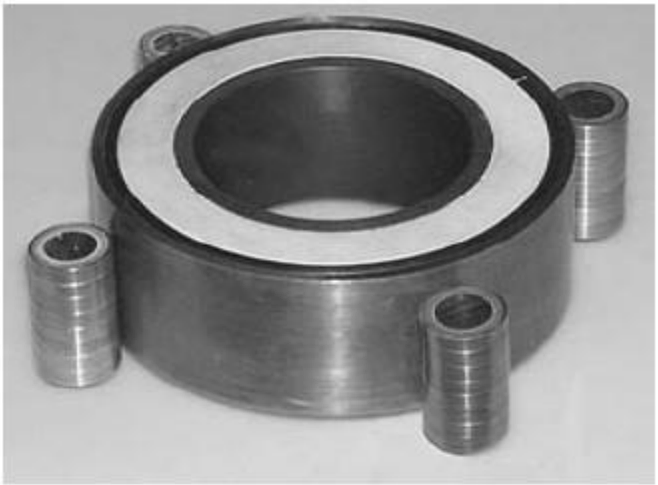


Fig.1
Experimental ring and rollers

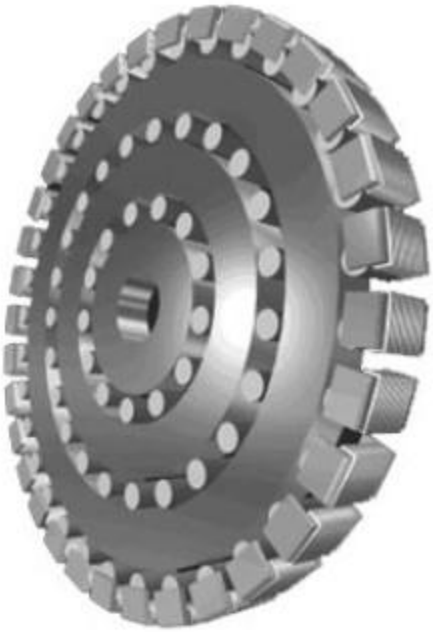


Fig. 2
15 KWt Searl Effect Generator (SEG)

Some expressions currently in use to describe the source of the energy for the SEG are the Space Fabric, Quantum Energy Field of Space, or Zero Point Energy. This is an unlimited and constant source of energy which can be made to flow when the correctly proportioned masses concerned are stimulated by the correct frequencies creating an ‘open system’.

The idea of utilizing this source of energy is currently the subject o various devices and experiments such as the ‘Lamb Shift’, ‘Casimir Effect’, and the work of the Russian Nobel Prize winner Ilya Prigogine. However, these devices and experiments tend only to prove the existence of energy and not a method to create a coherent, ordered flow to produce useful power.

In contrast, John Searl has discovered that, in order to create a steady and stable flow, all the masses of the device (and the stimulating frequencies) must conform to precise values determined mathematically by the ‘Law of the Squares’. A machine constructed to these principles produces a stable and useful power output.

Definition of a Surface-Operating SEG

A linear motor operating on a magnetic bearing with the characteristics of an auto-transformer. The SEG is defined as a device, which is constructed from 2,124 component parts, which make up 3 plates and 66 roller sets. 12 of the 2,124 components create the 3 plates, which act as reaction components. 2,112 components are employed to create 66 roller sets, which act as active components. Each roller set consists of 8 segments constructed from 32 components. Each segment cannot be less than 34 grams in weight, as the law of squares defines that value as the lowest value suitable for the reasonable generation of electricity. Therefore the smallest roller set must weigh 272 grams, making a grand total of 2,244 grams per roller set for the smallest surface-bound SEG.

Tolerance should be about 0.05 gram per roller set. The larger the error the greater is the loss of power within the unit. Therefore the total tolerance for the smallest SEG roller set must not be greater than 3.30 grams --- above this factor the SEG will not function. For the best results, the tolerance across the total 66 roller sets should not exceed 0.05 grams!

The SEG is a step-up rotary transformer. In fact it's a 'three rotary transformers' operational system, within a unit. The inner transformer output is fed in to the input of the second plate which increases the output of the second unit, thereby increasing its final output to a very high voltage. Therefore the SEG is just a prime mover for the production of clean electrical energy. The output windings must be designed to step down this output to 240 volts at 15 Kwatts…

When the SEG rollers are brought into close proximity to the SEG Ring, te Searl Effect resonant magnetic field causes negative ions and electrons to be drawn into and accelerated through the machine. This process is assisted by the highly electron-attracting rare earth metal Neodymium.

The unique mechanical and material arrangement of the SEG pulses the neodymium to continually release and replace the surplus electrons to provide electrical or mechanical power, or both.

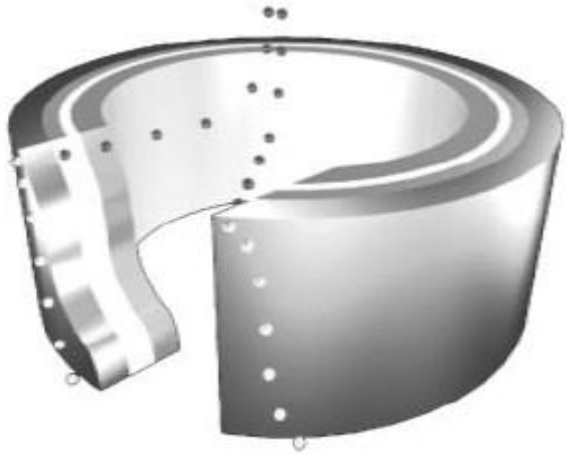


Fig.3

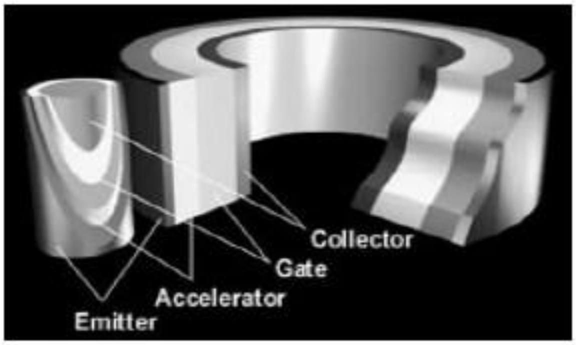


Fig.4

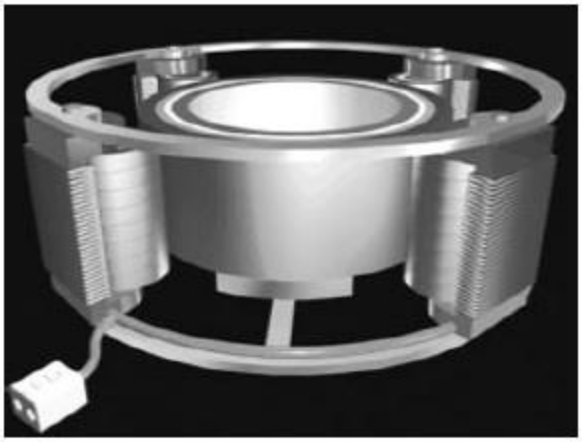


Fig. 5
Demonstration ring and rollers

Development

Prior to the production of complete 15 KW SEGs, a minimum of two demonstration Ring and Roller prototypes are to be produced.

The ‘Ring’ is typical of the innermost of the three rings required to make a complete SEG. The 69-roller sets in a complete 3-ring SEG are identical. Six roller sets will be made for the prototype inner rings so that the Searl Effect can be demonstrated.

The production of a self-running Ring and Roller prototype will establish the precise sequence and parameters of electrical, magnetizing and material processes required for the SEG and will demonstrate electrical power generation. An operating single inner ring with 1-8 rollers will also determine if a particular material will function correctly and at what level of power output…

Open Source Energy network
http://www.opensourceenergy.org

Video Link: http://www.opensourceenergy.org/_layouts/apps/vplayer2.asp?vID=24 (IFNE Conference, Denver CO, 1994)

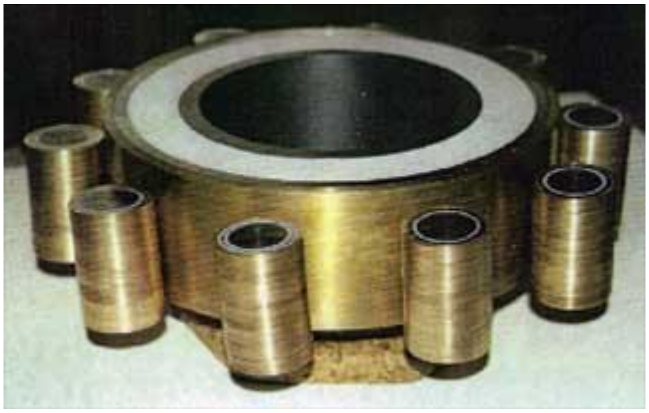
www.searleffect.com

NOTES

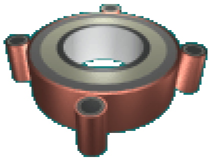
"The Searl Effect Generator (SEG) is a magnetic diode, and what one may consider one of the original "Free Energy" Devices. The inventor of the technology is Professor John Robert Roy Searl of England. The SEG in essence is a composite ring made of an electron reservoir (a rare earth like Neodymium), a magnetized accelerator stage (Iron or Nickel), an electron flow regulator stage (Nylon 66 or Teflon), and finally, a paramagnetic layer (Aluminium or Copper). The design of the SEG is both beautifully simple and infuriatingly complex at the same time..."

"Inside each of these IGVs there is a powerful 3-ring SEG which provides levity to the craft through a combination of magnetic, electrostatic and flywheel effects, many of which I freely admit are beyond my comprehension.

"The iron element in the SEG "plate" (the big ring) is magnetized with a combined DC and AC magnetizing sequence which causes many poles to form all over the surface of the iron, in a wave like pattern corresponding to the AC frequency used. The iron element is then combined with the others (which are NOT involved in the magnetizing process) in a process called sintering - pushing them together under pressure. The same is done for the smaller magnets, or "rollers", except that each roller consists of eight stacked segments held together by the magnetic field. When you have twelve roller stacks and a correctly magnetized plate, and place the rollers on the plate as below, something truly amazing happens.



"There are only ten rollers in the picture for safety reasons, as in a full set, the rollers will accelerate to 250km/h around the plate! This incredible feat is due to the instability of having an AC sine imprint on the plate and a cosine print on the rollers - instability created as the fields conflict causes the rollers to orbit the plate. They are held down by the magnetic field and thrown out by the centrifugal forces, so the rollers do not actually touch the plate when in motion. Thus, friction is virtually non-existent, and the high electrostatic charge accumulated by the SEG soon ionises all the nearby air and pushes it totally away from the SEG, enveloping it in an intense vacuum. High voltage flashover thus becomes impossible, and the potentials created by the generator can reach monstrous levels.



"Unlike any other form of electrical technology, the presence of electron flow throught the generator actually cools it, reducing the resistance. This is due to free electrons being pulled out of the air and the resulting energy deficit causing the air to cool. As one places a greater and greater load on the SEG's induction coils (fitted so that the rollers pass through them to produce high-frequency AC), the rollers accelerate to accomodate the added energy drain, more power is pulled from the air, and the temperature lowers even further. A critical point is eventually reached. At 4 degrees Kelvin, the SEG superconducts and totally loses all electrical resistance. At this point, it levitates, completely enveloped in a perfect vacuum. Without control, it will accelerate up away from the Earth and disappear off into space, never to be seen again. To control it, a powerful radio frequency emitted nearby is required. If the same RF is transmitted as the AC frequency used to magnetise the rollers, they will completely stop. This acts as an ideal control gate, preventing the loss of costly generators.

John SEARL

Levitation Disc -- Articles

SEARL NATIONAL SPACE RESEARCH CONSORTIUM

UNITED KINGDOM DIVISION

Volume 1, Section 4
Newsletter No. NSRC-RM/BR-1 Dated June 1, 1968

THE SEARL EFFECT

by P. L. Barrett, B. Sc.

Background

In 1949, Mr. J.R.R.Searl was employed by the Midlands Electricity Board as an electronic and electrical fitter. He was very enthusiastic about the subject of electricity, though he had no formal education, outside that demanded by the job, on the subject. Unhindered by conventional ideas about electricity, he carried out his own investigation into the subject. During work on electric motors and generators, he noticed that a small e.m.f. was produced by spinning metal parts, the negative towards the outside and positive towards the rotational axis. In 1950 he experimented on rotating slip-rings and measured a small e.m.f. on a conventional meter. He also noticed that when the rings were spinning freely and no current was taken, his hair bristled.

His conclusions were that free electrons in the metal were spun out by centrifugal force, a centripetal force being produced by the static field in the metal. He decided to build a generator based on the principle. It had a segmented disc rotor passing through electromagnets at its periphery. The electromagnets were energized from the rotor, and were intended to boost the e.m.f.

By 1952 the first generator had been constructed and was about three feet in diameter. It was tested in the open by Searl and a friend. The armature was set in motion by a small engine. The device produced the expected electrical power but at an unexpectedly high potential. At relatively low armature speeds a potential of the order of 10^5 volts was produced, as indicated by the static effects on near objects. A characteristic crackling and the smell of ozone supported the conclusion.

The really unexpected then occurred. The generator lifted while still speeding up, broke the union between itself and the engine, and rose to a height of some 50 ft. Here it stayed for a while, still speeding up, and surrounded itself in a pink halo. This indicated ionization of the air at a much reduced pressure: 10^{-3}mm Hg. More interesting was the side effect causing local radio receivers to go on of their own accord. This could have been due to ionizing discharge or electromagnetic induction. Finally and thankfully, the whole generator accelerated at a fantastic rate and is thought to have gone off into space.

Since that day Searl and others have made some tens of small flying craft, some of which have been similarly lost, and developed a form of control. Larger craft have also been built, some 12 feet and two 30 feet in diameter.

The antics of his machines have given rise to much speculation as to the nature and origin of so-called "flying saucers". One wonders why Searl has not come to the notice of scientists and the public at large. The fact is that he has, but, for fear of being ridiculed, people keep the knowledge or interest to themselves. The public has been educated to scoff at the subject of flying saucers, and the reported behavior of things that cannot be explained by current scientific theory. Such "difficult to explain" topics (as with telepathy, dowsing, homeopathic healing) must be given the "no comment" treatment, so as not to upset the uncertain structure of present science theory.

Searl's records do show, however, that his efforts have not gone unnoticed. Government departments and people of all classes and education know about him. Some have attempted to steal the idea, but their thinking along the lines of the electromagnetic theory and the law of conservation of mass and energy has misled them or confused them. This narrow thinking has made many conclude that Searl is a crank or imposter. Also some are prejudiced by the attitude that new ideas are the prerogative of the hierarchy of intellectuals.

It is suspected that Searl will come up with something more momentous than his games with power lines and the unsuspecting motorist. In that event the conventionalist must be ready to marry the Searl Effect into existing theory or suffer the alternative fate of a complete breakdown and revisal of physical theory from Ampere, Galvani and Volta onwards.

The Effect

Any theory must explain the various phenomena, some of which have been observed by Searl himself and some by the general public. Associated with the Searl effect craft are the following:

1) Antigravity or levity.

2) Very high electrostatic fields.

3) The peculiar magnetic effect.

The generator produces a 'D.C.' static field with negative polarity at the rim, and positive at the center. However, the magnetic field from the generator produces induction in conductive loops when there is no relative movement. The effect is seen in the paralysis of electrical equipment and is used in a U.F.O. detector put out by a club. This instrument, on being examined, is found to be a deflection magnetometer in a closed conductive loop. The presence of a craft is indicated by the deflection of the magnet from the N-S line.

It seems, therefore, that the flux from the generator is continually expanding. This implies an indefinite quantity of energy.

4) Perpetual motion.

Once the machine has passed a certain threshold of potential, the energy output exceeds the input. From then on the energy output is virtually limitless. Searl explains this away by stating that the machine collects solar energy.

The estimated power output of the generator is some modest 10^{14} or 10^{15} watts which puts the figure too high for a solar source.

5) Inertia loss.

Above threshold potential, which must be some 10^{13} volts, the generator and attached parts become inertia-free. This of course jars with accepted concepts of inertia in mass.

6) Drive.

By altering the distribution of potential on the surface of the craft, it is possible to propel it. The preferred direction of travel at ultra high speeds is away from the planet, the plane of the generator being at 90° to the gravity field.

When in horizontal flight, the craft takes up an angle to the gravity field suggestive of the balance between like vector fields. The generator may produce a gravity-type field of its own.

7) Ionization of the air.

This is a simple electrostatic effect. It gives rise to a translucent glow surrounding the craft and glowing trails. The intensity of the field is such that it is capable of excluding the ionized air creating a near vacuum around the craft.

8) Permanent electric polarity.

Searl noticed that after working near the craft or generators he had a "cobweb" sensation on the skin. His clothes clung to him and also the bed linen. This was accompanied by occasional crackling and lasted some hours.

This effect could be attributed to a permanent polarity of dielectric material, in this case, the material being body tissue. Little work has been done on permanent dielectrics, but reference may be found in the records of the Physico-Mathematical Society of Japan, 1920. The work was carried out by Prof. Eguchi, Naval College, Tokyo.

An American company is at the moment producing permanent electret material for electro-static loud speakers.

9) Matter snatch during acceleration.

This occurs when the craft is on the ground and the drive is suddenly switched on. The rising craft takes up a lump of the ground with it, leaving the well-known hole in the ground.

Glossary of Terms

Space "Space Fabric"	In this context means the three dimensional medium which supports matter, force fields and radiant energy. It does not mean specifically interplanetary space, but includes it.
Ether or "Aether"	Another name for space, but implies a different concept in that space is regarded as the absence of matter, and ether is regarded as the existence of a space medium having specific properties. re:-O. Lodge theory.
Inertial Mass	Comparison of amounts of matter by examination of the inertial properties using the equation: $P = m a$ where P = force required to accelerate inertial mass (m) at an acceleration of value a.
Gravitational Mass	Comparison of amount of matter. G the force on it is a gravitational field. $P = Emg$. P = force on mass mg in a field of strength E. E is given by the Newtonian Formula. $E = \frac{GM}{d^2}$ Where G is universal gravitational constant, d^2 is distance from planetary body mass M.
Primary Magnetism	A large scale movement of ether.
Glowing Magnetism, Glowing Core	A center where ether is converted from undisturbed state to perturbed states giving rise to various manifestations of primary magnetism, e.g. gravity, magnetism, electrostatic fields, matter, and radiant energy.
E. M. F.	Electro motive force, potential difference produced by separation of charge.
Inertia	Reluctance of matter to change its state of motion.
Levity	In opposition to gravity
Microcellular	Made up of very small cells.
Macrocellular	Made up of quite large cells.
Vortex	Circulation in a fluid.
Microvortex	Small area of circulation.
Quasar	Very small but highly dense star with a fantastically high gravity, producing a large 'red shift' in the spectrum of the star.
Exothermic	Giving of energy (usually heat).

Outline of A Theory

The existence of Searl Effect type of craft is a fact. An open-minded, well-educated scientist has to admit that more chance evidence exists for the craft than anticipated evidence for the omega particle. One photograph in several thousand was considered sufficient evidence for it. Any theory to cover the Searl Effect is better than no theory. If the following proves to be inadequate, then constructive criticism of the argument may provide thought for a better theory.

A theory to cover force fields of all types should attribute a fundamental cause to interaction of matter at a distance whether the interaction be gravitational, magnetic, nucleonic or electrostatic. Present theories include interchange of virtual photons or mesons, and multi-dimensional distortion of the space-time continuum. Whatever the argument, it will depend basically on the concept of a medium to support the wave motion, flux or distortion. The medium is space and the properties of it have never been seriously investigated, neither practically nor theoretically, that is excepting the possibility that it has been overlooked. The accepted idea is that space is empty, a place with the absence of matter, devoid of tangibility. This is taught to our children as being a primary contention, and is in fact bad negative thinking. We do not understand it so we turn our backs to it.

Physical investigation of 'space' is impossible, for the experimental technique demands use of apparatus which is made of matter which in turn occupies space. One of the fundamentals of the experimental method is that the materials and principles under investigation cannot be included in the apparatus. This was but one failure of the Michelson-Morley experiment. In its original form, this experiment was set up to test for ether drag due to the passage of the earth through the medium, but has been assumed to have been an experiment to actually test for the existence of an ether. Failure of the experiment to give a positive result made it possible to interpret the negative result as favoring the non-existence of the ether as Oliver Lodge imagined it. The then-developing materialist philosophies took the opportunity to discredit the pseudo-scientific religious cult of spiritualism, in which the idea of an 'etheric existence' was an important part of the philosophy. As it happened, the two etherics need not have had any connection except in the choice of words. The ether theory was dropped and the spiritualist cult subdued. Today, the Michelson-Morely experiment has been modified to show Doppler interference between coherent wave trains. One wave travels against, and the other with the direction of rotation of the whole apparatus. Results are in favor of the theory of relativity, but can also be interpreted in favor of 'ether drag' within the stationary medium about the apparatus.

A vacuum transmits radiation and force fields, so to refer to it as being empty is inaccurate. Real emptiness must include in its definition reference to its inablilty to propagate energy. Such may be better termed 'hyperspace'. As to whether hyperspace has the dimensions of space and time or not is a topic for more thought. It is easier to attribute the dimensions to the [illegible] fabric in hyperspace, the ether.

The idea of an energy continuum throughout space occurred to Dirac. On the basis of his theory, matter particles emerge from a ground state and become physically observable. Material above the ground state has a higher energy than the ground state and so requires energy to be dislodged. The energy corresponds to the total energy of the particle, its mass energy (mc^2) and other potential or kinetic energies. The theory, then, supposes that matter is of the substance of the ground state, that is, 'empty space'. In comparison, the Lodge theory supposes that the ether has a maximum of energy, and matter particles are a lower energy precipitate from the ether. The same idea, but a difference of sign. However, this implies that the appearance of matter is a preferred state, and that the creative process is a naturally occurring condition.

Heisenberg, in formulating the 'unified field theory', assumed a space fabric of some nature. To quote from the Lindau Conference, 28th June 1962, "The discovery shows that the different elementary particles are not Nature's building bricks, completely independent of each other, but many different forms of a fundamental substance manifest as energy". From then on, the 'fundamental substance' is forgotten. "The multiplicity of these forms corresponds to the multiplicity of the mathematical symmetries of the basic equation".

(←?)

In the basic equation ($\frac{dv}{dt} = an^2\psi \approx 6v\psi$) the physics of the fundamental substance is overlooked. The mass of equations following is none the less impressive and the fundamental substance is represented by the symbol ψ which gives no clue to the nature or properties of the stuff. This symbol could apply to any elastic medium and is merely an auxiliary mathematical quantity introduced to facilitate computations relative to the results of experiments. This is the error of current trends in human thinking -- the emphasis on quantities rather than qualities.

Sir Oliver Lodge imagined the space fabric as having a microcellular structure, each cell being a vortex whose size was of the order of the size of the fundamental particles, or even smaller. The medium was frictionless and the rotational velocity of the vortices related to the velocity of light. The intrinsic energy of the ether was in the motion in the vortices. This attributed an ultimate energy source to space itself. Lodge also imagined that the ether had an enormous inertia and density. The inertia in mass was due to the ether in it, and solidarity of matter was virtual.

A similar idea occurred to a Karl Schappeller of Castle Aurolzmunster in Inviertel, Austria (died 1947). According to his philosophy, a change in the space fabric (static potential) gave rise to so-called primary magnetism which may be interpreted as a type of autogravitation. This primary magnetism caused a gathering of the surrounding space fabric and from it issued more fundamental energy as an intensification of the primary magnetism. At a certain stage, the system reached an equilibrium gathering space fabric, and from it precipitated energy. When the energy density reached a required level matter would be produced. The system would take up a spherical form in the 'natural' state and become what Schappeller called 'glowing magnetism'. Glowing magnetism, he claimed, constituted the core of all planets and suns, the gravitational core of which was due to the glowing magnetism at its core. How this theory fits the universal law of gravitation is at first difficult to see.

We must remember that the universal law of gravitation is based on Kepler's Laws, which were derived from astronomical observations on the planets. The masses of these bodies can only be determined from their gravitational interaction, not from their inertial properties. Hence for cosmic bodies the term m in the derived formula $E = G \frac{m}{d^2}$ is not necessarily related to the inertial mass of these bodies, but the gravity of them. Gravity cannot be proved to be due to the mass content of these bodies by astronomical observation only. Further, no convincing experiments have been conducted to prove that static inert matter has any gravitational field. Experiments, like that of Airies, which use the earth as a mass, are questionable on the basis that the gravity may be due to the earth's field alone. Boys' and Cavendish's experiments showed only that masses in relative motion have a force between them, since in both experiments the masses were in torsional vibration suspended by a beam. The force could be attributed to an inductive or relativistic effect between the charged particles constituting the masses.

Hoyle, form his work on quasars, has deduced that vast cosmic masses could undergo gravitational collapse leading to a singularity and that the converse was possible. A singularity could explode into a creation field. This is much the same idea as that of Schappeller, though on the basis of his theory the creation process is much less dramatic. Hoyle's creation field arises from nothing, whereas that of Schappeller, glowing magnetism, arises from the space fabric. Which is the more plausible?

Physical evidence for the existence of glowing magnetism may be available. The source of energy in comets has long been a problem. How a comet can give off so much radiant energy and continually dissipate its matter in the tail, yet despite its apparent lack of substance survives to return after many years, is difficult to explain in terms of conventional science. The usual explanation is, of course, the energy is re-radiated sun's energy. Who has proved it? The existence of 'ball lightening' has now been accepted but as yet elude explanation, except that attempts have been made without the usual mathematical substantiation. The peculiar anti-gravitational effect, the inductive effects and the fantastic energy of ball lightening fits neatly in with Schappeller's theory of glowing magnetism. The glowing ball of polarized space fabric is precipitated by enormous static fields or high current pulses in thunder storms.

At a center of glowing magnetism, the space fabric is modified and the energy condensate comes off as magnetic fields and radiation. The consumed fabric is replaced by an influx of the surrounding space. Matter particles in the surrounding space would experience a force towards the center. This would be a gravitational field. Lodge imagined that the ether would be near incompressible with a very high elasticity. A small inhomogeneity would give rise to a relatively big effect. Also the ether flux would be at the velocity of light and bunched in much the same way as magnetic fields bunch at high intensity. Thus the maximum velocity of a matter particle would be that of the velocity of light and the approach to that velocity, an exponential. Can the theory then explain cosmic gravitation? If so, there must always be a magnetic effect associated with it.

The name 'glowing magnetism' implies that Schappeller considered this to be of prime importance. In fact, he maintained that the magnetic field produced by a glowing core was different from the familiar type of field in that it was a dynamic field, not static. This is consistent for an energy source with indefinite energy could produce a continually expanding flux. Such a dynamic flux would be capable of inducing a D.C. in conductors. As a secondary effect, the currents would produce a static magnetic field of the usual type. A cord of a cosmic body then would produce dynomagnetism which would be absorbed by matter to produce a magnetic field. This field would have to be a function of the gravity if the theory is any good.

As it happens, a reference to related work can be found. Prof. P.M.S. Brackett, quoting from the works of Schuster, Sutherland and H.A. Wilson, showed that the magnetic moment P and angular momentum U of the earth and sun are related by the equation:

$$P = \frac{B\,G^{\frac{1}{2}}\,U}{c} \qquad \text{where} \qquad P \simeq 1$$

c is the velocity of light and G the universal gravitation const. The relationship holds for Bohr magnetrons, and support for it appears in DeBroglie's equations for mass waves. It is interesting to note that the formula also includes rotational motion. Particularly, the equation relates angular momentum, magnetic field and gravity. Angular momentum is known to be related to gyroscopic restoring couples. Although gyroscopic action can be dealt with mathematically, no physical explanation exists for it. In view of the fact that a vector is required along the axis of rotation, might this not suggest that rotating matter generates a field along this axis. As yet, it can only be postulated that the field couples the gyro in a fixed orientation in the space fabric. This direction sensitivity suggests anisotropic qualities of the space fabric. Lodge imagined that this might be so.

Magnetism at one time was regarded as separate from electricity until the electromagnetic effect was discovered. Then the problem was: "Is electricity a form of magnetism or magnetism a form of electricity?" Einstein showed, however, that magnetism was a relativistic effect due to the movement of charge, thereby identifying magnetism as being a form of electricity. From thence sprung the concept of electron spin which fitted a good theory to explain permanent magnetism. Much work is being done on spin resonance which further supports the theory. However, the discovery of magnetic monopoles indicates the possible existence of magnetism without charge and that magnetic lines of force need not be continuous. This raises questions as to the exactness of the Theory of Relativity and the Electromagnetic theory in their present form.

Schappeller regarded magnetism as more fundamental than electric current and that current was flowing magnetism in the conductor. The field of influence surrounding a wire was an externalisation of the flux within the wire. The field, therefore, must be regarded as flowing parallel to the 'current' in the conductor. The mathematical treatment of such a configuration leads to the same practical results as the conventional idea of magnetic flux as being perpencicular to the current flow. The actual nature of current and magnetism, being one and the same, may be visualized as large scale flux interspaced between the Lodge microvorticies. Such a flux must result from the break-up of the microvorticies and therefore will appear as a form of energy potential. Conventional magnetic field may be regarded as a form of potential energy.

If we accept that magnetism is more fundamental, then a consistent explanation must be found for static potential, induced E.M.F. and electrochemical potential. A conductor forced through a magnetic field interacts with the macroflux of the ether ahead of it and absorbs the flux in a direction depending on the direction of the macroflux. This constitutes the current in the conductor. The flowing magnetism in the conductor reconstitutes the macroflux behind it, the energy being derived from that which forces the conductor. If the conductor is open circuit, an e.m.f. is set up. This is like electrostatic potential, in that it is static magnetism, the polarity depending on an excess of ether at the point at higher potential compared with that at lower potential. Since the ether tends towards uniformity, then an ether flow will occur under suitable conditions to relieve the strain. This constitutes flowing magnetism which is current. The flow in the conductor affects the surrounding ether, giving up some energy to it, creating macrovortices, which is a magnetic field.

An electrochemical e.m.f. is an expression of the energy available from an exothermic reaction but in a potential form. When current flows, the reaction takes place and the potential chemical energy is dissipated. Schappeller regarded chemical bonds as a static form of magnetism in the same way that static electricity could be regarded as immobile magnetism. Matter particles being an ether precipitate cause permanent density irregularities in the ether. Chemical bonding or particle bonding lowers the stressed condition of the ether releasing the retained ether, or static magnetism, as some form of ether disturbance. This could be ether waves (radiation), macrovortices (magnetic field) or flowing magnetism (current), which are all forms of energy.

Looking back over the theory, it is seen that in glowing magnetism the space fabric is destroyed as microvoritces and the resultant residual flux appears as large scale flow patterns in magnetic fields or macrovortices. If this primary magnetism reaches high values, the flux interferes with the surrounding space fabric to produce matter particles, so being partially re-absorbed. Radiation can only be produced by matter particles, so that once matter has formed, energy may leave the creation field as radiation from the particles which are stimulated by the magnetism.

The primary magnetic field of the Schappeller glowing core is different in a very fundamental way from the usual type of field. In a perfect conductor, if the e.m.f. is maintained, the current increases and hence the magnetic field. That is, as long as energy is supplied to the system the field expands. In a resistence, the energy is dissipated as heat and the field is constant. In the Schappeller primary field, the flux is continually supplied as the energy is created, and therefore the field continually expands. This is dynomagnetism and an ordinary magnetometer is insensitive to the field. A conductor in the field will have an induced current and thereby produce a detectable static field. The instrument to detect a dynomagentic field must consist of a loop conductor with a magnetometer at its center. This the exact design of U.F.O. detectors.

If, as Schappeller states, the earth has glowing magnetism as its core, then it should produce dynomagnetism. Most of this would be absorbed in the material of the planet and produce the static field. If any of the dynomagnetic field did penetrate the surface, it would be difficult to detect against the background of atmospheric disturbance and the static field. In his early experiments, Riech did detect and accumulate energy from the earth which was other than natural radiation. A core of glowing magnetism wpuld be and would have been in the process of producing matter. The earth would have been expanding from the center since it first formed. This was the best explanation for "continental drift", but a reason for the expanding earth could not be found. Geographers would welcome the idea, for the land masses have been shown to fit neatly together on a sphere of about half the sizé of the earth.

The creation fields or glowing magnetic cores at the center of cosmic bodies must somehow originate. Schappeller's argument as to the origin is more difficult to follow, because of terminology, than the rest of the theory. It seems, however, that when a sun becomes large enough to form a crust, the very process of doing so causes a focusing of the various fields which starts up a new flowing core making the center of a new sun. The old sun has its supply of ether cut down and the glowing core is subdued but not snuffed out. It becomes a planet of the new sun with an apparent reduced mass due to the drop of gravity and reduced size as it initially cools and contracts. The core of the planet is not yet finished, for it continues until the crust becomes very thick and finally cuts off the ether supply. Then the core does die and the planet loses its gravity. Only molecular forces remain to hold the planet material together and if the internal pressure is high the planet can explode.

This clashed with the conventional ideas, but thought out in detail equally explains observation. It does go one better in that it adequately explains some facts not covered by the conventional theory, the asteroids, for example.

Other than providing a fundamental explanation for the organized universe, Schappeller went as far as to design a device using and converting the fundamental substance into useful energy. It was designed to produce a glowing magnetic core in vacuo which then is self-sustaining Basically it consists of a pair of coils wound on to a hollow ceramic former, shaped spherically and contained in an iron sphere. The coils are of copper tubing packed with a permanent electret material. This constitutes the dynomagnetic generator. To convert the energy into mechanical energy, a rotor is used, also made from copper tube packed with electret. The sphere functions only after the electret material is polarized.

Because of the terminology in the Schappeller theory, it is naturally difficult to follow, that is, apart from the strangeness of the concepts. After several readings, one might conclude that "glowing magnetism", or ether precipitation, starts if the electric and/or the magnetic fields reach enormous values at a given point. It seems that this is the function of the stator device outlined above. The arrangement of the fields must be such that a reduction in the density of the ether occurs instantaneously. An immediate influx of ether occurs which continues under its own inertia. The resultant compression then causes the production of energy which appears as (radiation and) magnetism. By this process it would seem that an oscillatory state is set up. This may be so and the frequency related to the size of the glowing core. One might expect some sort of longitudinal ether wave to be set up which would be entirely different to the transverse waves of electromagnetic radiation. The wave would cause variations in the ether density which would mean that matter would tend to occupy regions of maximum density in the wave and that the velocity of light would vary slightly between maxima and minima.

In the case of the earth, the Van Allen belts could be taken as an indication of such gravity waves, and for the sun, the obvious fact that the planets occupy orbits that are harmonicly related. In both cases a standing wave is indicated. It might be worthwhile research to look for variations in the velocity of light in the Van Allen belts.

Lodge deals with the problem of inertia by attributing the property to the ether itself. Matter, he claims, has no inertia as such, but acquires an induction as it moves through the space fabric, or more correctly, the space fabric moves through it. The induction constitutes a change of energy seen as kinetic energy, and the state of motion lasts as long as the induction lasts. The theory also asserts that the ether itself has an enormous inertia and is in a preferred state of rest. Small movements give rise to big effects, for example as in gravitational fields. However, small movement does not mean slow movement. The idea that the cellular vortices circulate at the speed of light might be extended to larger fluxes. The conclusion to this is that matter accelerated by force fields cannot exceed the speed of light and the approach to it would be exponential.

Application of Theory

The ultra high potential produced by the Searl ring generator being so much greater than the ionization potential of the air, causes ionic breakdown of the air at some feet from the craft skin, as this acts as the positive electrode. The negative side of the generator is connected to the periphery of the disc, and is isolated from the skin. The field at the negative terminal is therefore very much greater and the air is ionized at a greater distance at the rim. The air at the positive terminal loses electrons and the resulting ions are repelled from the terminal with high acceleration. The electrons pass through the generator, constituting the current in the generator, and provide the charge at the negative terminal to produce negative ions in the air near the rim. The craft therefore is enveloped in a vacuum.

In ordinary high voltage generators the maximum potential is limited by the ionized breakdown of the air. Flashover occurs and the accumuulated energy lost. The geometry and the arrangement of the field coils in the Searl generator is such that flashover is eliminated until the thing is in a vacuum and then is impossible.

Energy is required to build up the potential and initially has to be supplied from an external source. As the vacuum layer increases about the craft, less energy is required to maintain the potential. The generator soon reaches a potential when the Searl Effect takes place and the device produces its own energy along with the levity phenomenon. On the basis of the theory, at this potential the stress on the space fabric cannot be equalized by flowing magnetism (current flow) through the air and craft as circuit. The space fabric breaks down to provide the magnetism to relieve the stress, but the energy by-product is absorbed by the generator which reinforces the field.

The generator then must set up an ether flux along the lines of the electric field as is conventionally represented. The direction of ether flow is, however, in at the positive and out at the negative. This is deduced from the Schappeller theory. The generator and craft therefore produce their own gravitation type field. The net effect of the craft field plus the earth's gravitation field gives rise to a condition where the ether density below the craft is higher than that above it. The craft therefore is strongly repelled from the planet,.and to stop it shooting off into space the field of the craft must be intentionally perturbed. In the drive condition, then, the field is as shown in fig. 4 and the craft is shot out of the earth's field like a wet orange pip from between the fingers. The acceleration is enormous, but since all matter associated with the craft is linked with the field no distortion of any part, including passengers if any, occurs. The limit to the speed is unknown but since the craft has no inertia there is possibly no limit. It would be safe to say, however, that the limit is below the speed of light. Above this speed too much is unknown to take the risk, but since the craft carries its own space with it the theory of relativity is inapplicable. In fact, the craft does not travel through space but past it.

It can be seen from the gravity field diagram that a neutral zone appears below the craft as well as the neutral ring above, when the levity drive is on. If matter becomes located in the zone, then it is held there. In consequence, the Searl craft so far made have left their mark on the country-side in the form of large, neat holes when they suddenly take off. The chunk of earth is taken up with it.

The gravity field within the body of the craft is such that the center is up and the rim down. If the generator is allowed to "run up", because the polarity is opposite to that of the Schappeller machine, the field is expansive and pulls the craft apart. Prior to this, glowing magnetism could start, characterized by an orange-yellow glow, but could not become self-sustaining, being expansive. The Searl generator runs at low speeds and is unlikely to fly apart by centrifugal force. Apart from this, the side effect electromagnetic forces help to keep it together. As with other gravity fields, the flux favours passage through matter and so the field within the craft may be tailored by appropriately distributing the mass in the craft. This is of particular convenience in manned craft where the comfort of crew may be improved by making the cabin field about $\frac{1}{4}$ g.

The external field, when the craft is travelling in free space, would resemble that of the combined earth and craft, since it would be moving relative to a stationary ether. Collision between the craft and large objects in space is very unlikely except in direct line of flight when such could be seen and the craft rapidly turned. The field is such that the objects are diverted past the craft, or it past the object. If the object qualifies as a planet or moon having its own gravity due to a glowing core, then the craft oriented by the interaction of fields is strongly repelled anyway unless measures are taken to alter the field of the craft. Small objects such as meteorites are pushed out by the combined electric and dynomagentic fields. An object entering such a powerful static field is at first attracted, then ionized and then strongly repelled. The dynomagnetic field induces a magnostatic (ordinary magnetic) field in objects which will interact with the craft magnostatic field at considerable distance (miles) and repel it.

It should be pointed out that only a very small amount of space fabric passes through the craft and an even smaller amount is converted for energy. However, as previously mentioned, small changes in the ether lead to large physical effects.

Even in deep space the craft has an electronic flow through the generator which is continuous along the electric field outside the craft. Electrons are picked up and some leave the rim at relativistic velocities. These do not contribute to the drive. So the craft also carries its own negative space charge. In an atmosphere the electonic flow is much greater, and the generator current much higher. The craft therefore functions a lot better and has greater flexibility in space. In air, the recombination of ions gives rise to a pink to blue glow around the craft and in damp conditions the ions in the air can give rise to condensation. This effect coupled with the output of electrical energy could well precipitate thunderstorms.

The only hazard so far observed is that if the craft hovers for too long low near the ground the soil becomes burnt due to the electric currents in it which build up heat. Also the nervous systems of animals are interfered with by ionizing discharge if they get too near. Only birds in flight have been really hurt by flying uncontrollably into stationary objects.

Bibliography

Electromagnetic Theory	Stratton
Principles of Quantum Mechanics	Hauston
My Philosphy	Oliver Lodge
Physics of the Primary State of Matter	Davson
The Dramatic Universe	J. G. Bennett
Beyond Telepathy	Puharich
Energy of the Orgon	Riech
Congress of Radionics and Radiesthesia 1950	

FIG I

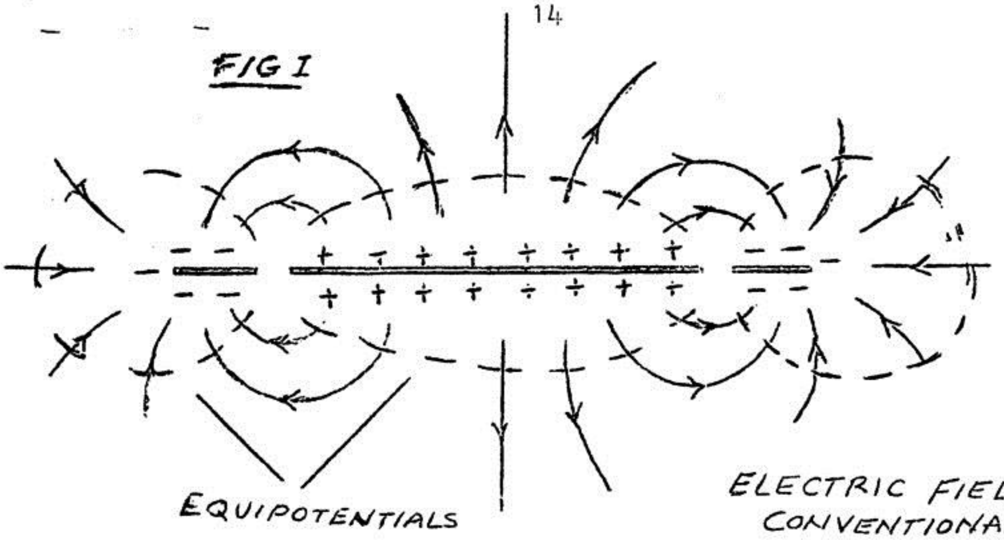

EQUIPOTENTIALS
ELECTRIC FIELD
CONVENTIONAL

FIG II

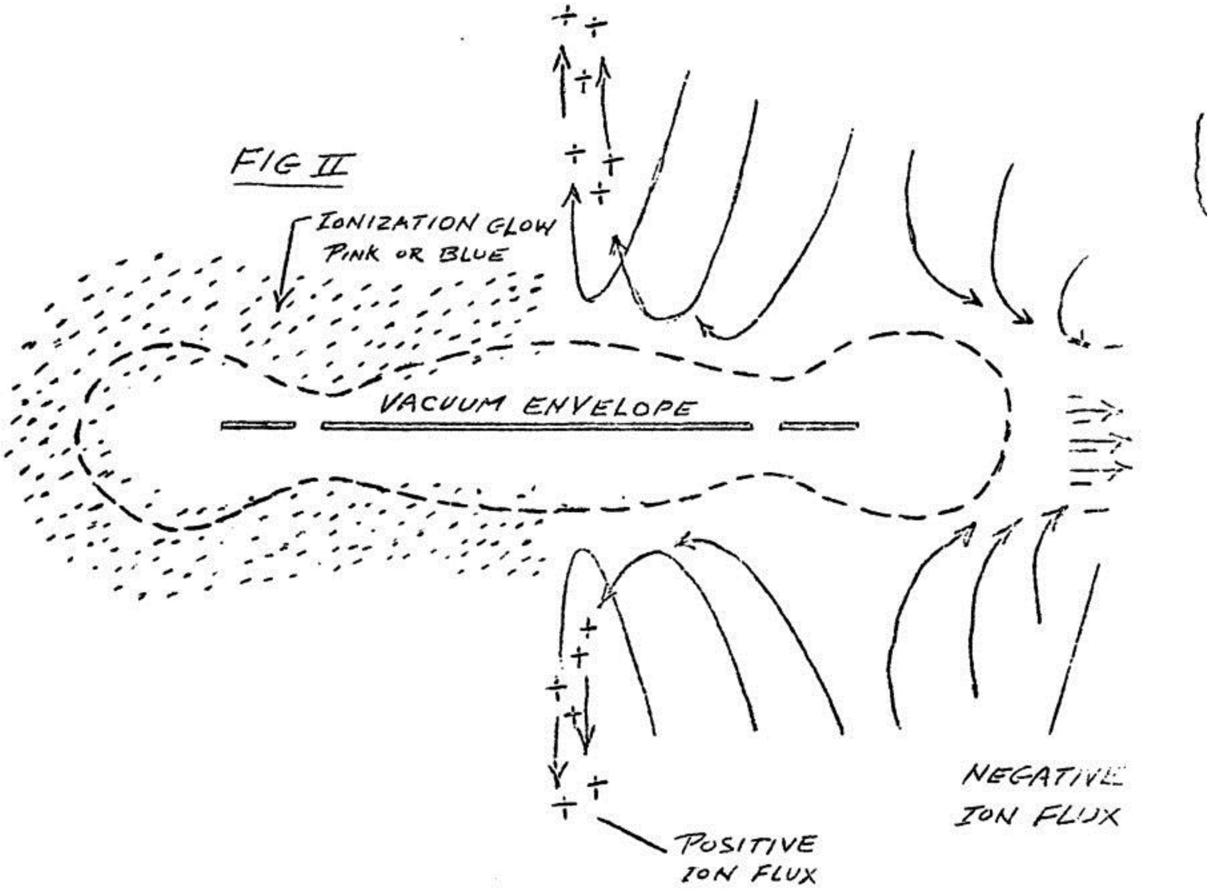

IONIZATION GLOW
PINK OR BLUE
VACUUM ENVELOPE
NEGATIVE
ION FLUX
POSITIVE
ION FLUX

FIG III

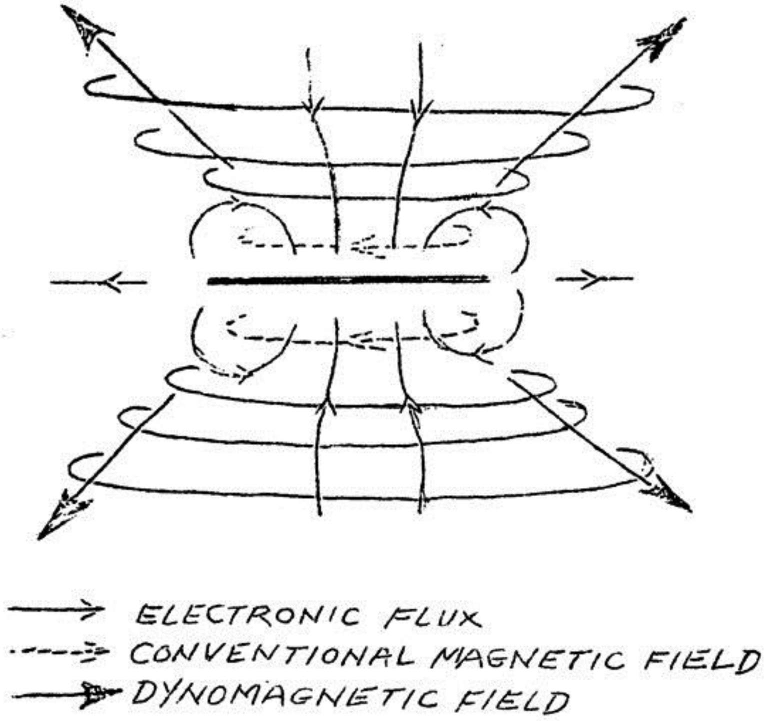
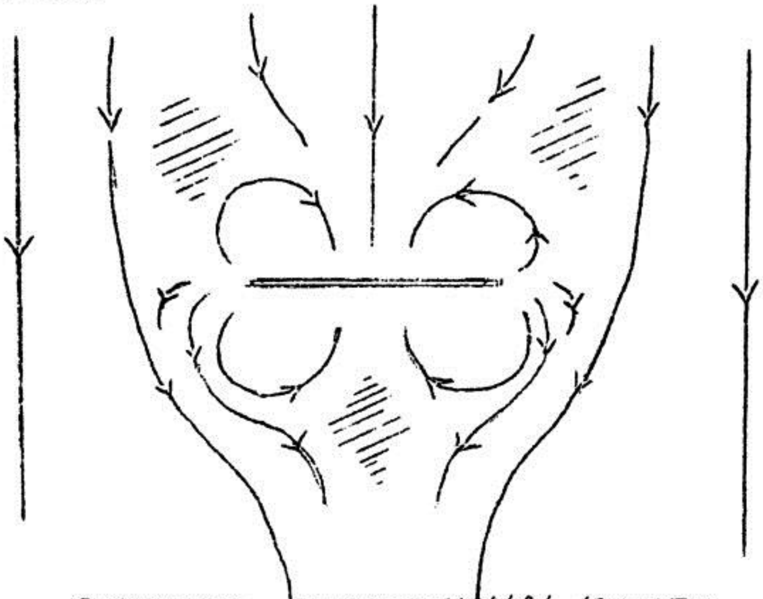


FIG IV



COMBINED GRAVITATIONAL FIELDS
EARTH'S GRAVITY FLUX + ETHER FLUX FROM GENERATOR

SEARL NATIONAL SPACE RESEARCH CONSORTIUM

JAPAN DIVISION

Newsletter No. NSRC-4 Volume 1, Section 2 Dated June 1, 1971

INTRODUCTION TO THE THEORY OF THE SEARL LEVITY DISC

by Shinichi Seike
Japan Division, NSRC

1. Introduction.

The Searl disc is a truly marvelous space vehicle, which is powered by gravitational stress energy stored everywhere in the universe. We shall examine the principles of its operation.

2. Gravitation of Negative Energy.

The Searl disc is repulsed by the gravitational field of the earth. We shall first proceed to show why it is repulsed. We may write the well known Newtonian law of gravitation:

$$f = \frac{kmm'}{r^2} \qquad (2\text{-}1)$$

where f, k, m, m', and r stand for gravitational force, Newtonean constant of gravitation, masses and the distance between two masses.

The familiar Einsteinean formula for the relation between mass and energy may be written:

$$W = mc^2 \qquad (2\text{-}2)$$

and

$$W' = m'c^2 \qquad (2\text{-}3)$$

respectively.

From (2-2) and (2-3) we derive:

$$m = \frac{W}{c^2} \qquad (2\text{-}4)$$

and

$$m' = \frac{W'}{c^2} \qquad (2\text{-}5)$$

which leads us to:

$$f = \frac{WW'k}{c^4 r^2} \qquad (2\text{-}6)$$

This formula is a generalized relation of Newtonean gravitation.

Paul A.M. Dirac, a famous mathematician of Searl's country, introduced the concept of negative energy:

$$W < 0 \qquad (2\text{-}7)$$

and

$$W' < 0 \qquad (2\text{-}8)$$

associated with his theory of positrons.

Four possible cases are shown in Table 1:

TABLE 1

W	+	+	−	−
W'	+	−	+	−
f	+	−	−	+

The table shows that positive energied bodies have ordinary gravitation of attraction, while a negative energied body repulses a positive one. The earth has, of course, positive energy. A negative energied space vehicle is repulsed by it. Since the Searl disc is repulsed by the earth's G-field, and is quite different from conventional space rockets, even ion rockets, it must be negative energied.

3. Realization of Negative Energy.

In the foregoing section it was found that the Searl disc must possess negative energy. We shall next proceed to show how he achieves this negative energy. "Zitterbewegung", a reciprocating oscillation from positive to negative energy state, is induced in ordinary particles. They are in a positive energied state during the first half cycle of oscillation, and a negative energied state during the second. This oscillation is represented by polar angular momentum, $\mathcal{R}$, and it is governed by a famous equation of Frenker-Kramers (Ref. 1)*, which states:

$$\frac{d\mathcal{K}}{d\tau} = \alpha\left(\mathcal{K}\times H - \mathcal{R}\times E\right)$$

$$\frac{d\mathcal{R}}{d\tau} = \alpha\left(\mathcal{K}\times E + \mathcal{R}\times H\right) \qquad (3\text{-}1)$$

where $\mathcal{K}$, $\mathcal{R}$, τ, α, E and H mean axial angular momentum, polar angular momentum, proper time, coupling constant of electromagnetic interaction, and the E and H components of electromagnetic field, respectively. Polar angular momentum, which specifies energy state, undergoes gyration by electromagnetic torque. Gyration in upper half space corresponds with positive energy, while that in lower corresponds with negative energy. Circularly polarized electromagnetic field of:

$$H = (H_1\cos\Omega\tau,\ H_1\sin\Omega\tau,\ H_0)$$
$$E = (-E_1\sin\Omega\tau,\ E_1\cos\Omega\tau,\ 0) \qquad (3\text{-}2)$$

whose angular frequency Ω satisfies the condition:

$$0 < \Omega + \alpha H_0 \qquad (3\text{-}3)$$

---

*Ref. 1: Kramers, H.A., Physica, 1 (1934) p. 825

governs gyration in lower half space. Consequently, angular frequency greater than cyclotron frequency is the condition of negative energy. The rotor of Searl's disc is segmented. It furnishes the rotating electric field, which in turn produces a rotating magnetic field. Thus he induces the electromagnetic field of equation (3-2), since the rotation takes place in the geomagnetic field. The speed of the rotor increases, and it soon results in the frequency condition of (3-3), which is the condition of negative energy. The rotor itself assumes a negative energied state, and the negative energied space vehicle is repulsed by the positive energied earth, in accord with the conclusions summarized in Table 1.

4. Calculation of Time for the Lunar Journey

In the foregoing sections, we examined the inverse gravitational propulsion of the Searl disc. Space Project Swallow's first objective is a trip to the moon. We shall next calculate how much time it will take to go from earth to the moon. The rotor of negative energy is repulsed by the earth, while other instruments and astronauts experience ordinary gravitation. If we denote these payloads by ν and that of the rotor by μ , we find the acceleration of the space vehicle to be:

$$\alpha = \frac{\mu - \nu}{\mu + \nu} g \qquad (4\text{-}1)$$

where $g = \frac{kM}{r^2}$

r and M stand for the distance from the center of the earth to the craft, and the mass of the earth, respectively.

When $r = R$

we know that:

$$\frac{kM}{R^2} = 980 \ cm/sec^2 \qquad (4\text{-}2)$$

If we denote the equilibrium point between the gravitation of the earth and that of the moon by $r = r_1$

for the distance from the earth, and with $r = r_2$

for the distance between the equilibrium point and the center of the moon, respectively, we obtain:

$$\frac{kM}{r_1^2} = \frac{km}{r_2^2} \qquad (4\text{-}3)$$

where m denotes the mass of the moon of

$$m = 0.0123 \ A.U. \qquad (4\text{-}4)$$

A.U. is one astronomical unit. We know of course that

$$M = 1.0000 \ A.U. \qquad (4\text{-}5)$$

and

$$r_1 + r_2 = 384{,}800\ km. \qquad (4\text{-}6)$$

Making use of (4-3), (4-4), (4-5), and (4-6), we derive

$$r_1 = 345{,}960\ km. \qquad (4\text{-}7)$$

The equation of motion of Searl's disc may be written:

$$\lambda \frac{d^2 r}{d t^2} = \frac{(\mu - \nu) k M}{r^2} \qquad (4\text{-}8)$$

in which $\lambda = \mu + \nu$

μ and ν being given in the first paragraph of section 4. The differential equation (4-8) can be solved such that

$$t = \frac{1}{\sqrt{2g}}\left[\sqrt{\frac{r_1(r_1-R)}{R}} + \sqrt{R}\ \ln \frac{\sqrt{r_1-R} + \sqrt{r_1}}{\sqrt{R}}\right] \qquad (4\text{-}9)$$

and

$$\frac{dr}{dt} = \sqrt{2gR}\ \sqrt{1-\frac{R}{r_1}}\ , \qquad (\nu \ll \mu) \qquad (4\text{-}10)$$

R and g having been given in (4-2), and taking the value of

$$R = 6{,}380\ km. \qquad (4\text{-}11)$$

we obtain the maximum speed of the disc

$$\frac{dr}{dt} = 11.3\ \ km/sec \qquad (4\text{-}12)$$

for the lunar journey; and the time taken is

$$t = 8 \text{ hours } 52 \text{ minutes} \qquad (4\text{-}13)$$

before it reaches the equilibrium point. Passing that point, the velocity gradually decreases, since the disc is repulsed by the moon. (The moon acts to decelerate the craft.)

5. Scientific Interpretation of the Searl Effects.

A. Electromagnetic Induction with G-deceleration:

The generator produces a D.C. static field with negative polarity at the rim and positive at the center. However, the magnetic field from the generator produces induction in conductive loops when there is no relative motion. It seems therefore that the flux from the generator is continually expanding. This implies that the growth of internal momentum of atoms in the rotor by g-deceleration produces electromagnetic induction.

B. Threshold Electric Potential:

The craft operates at a potential higher than 10^{13} volts, which implies that thermodynamic probability attains

$$L(\beta) \approx 1 \qquad (5\text{-}1)$$

at such a high potential. $L(\beta)$ stands for the Langevin function:

$$L(\beta) = cth\, \beta - \frac{1}{\beta} \qquad (5\text{-}2)$$

in which β is associated with potential and ambient temperature.

C. Thrust:

Horizontal propulsion can also be obtained by changing the potential distribution on the surface of the craft. This is because the plane upon which the electric field rotates inclines.

D. Pair Annihilation Glow:

Pair annihilation gives rise to a translucent glow surrounding the craft such that:

$$e^{+} + e^{-} \dashrightarrow \gamma \qquad (5\text{-}3)$$

which is accompanied by negative energy, and is more complicated than simple ionization. e^{+} and e^{-} in (5-3) stand for positron and electron, respectively.

E. Permanent Electric Polarity:

Searl noticed that after working near the craft or generators he had a "cobweb" sensation on the skin. His clothes clung to him and so did the bed linen. This was accompanied by occasional crackling, and lasted for some hours. This effect could be attributed to a permanent polarity. Paraelectric substances such as clothes can acquire a sufficient polarity with

$$L(\beta) \simeq 1 \qquad (5\text{-}4)$$

from the high electromagnetic field surrounding the craft.

* * * * * * * * * *

An Appeal to our Noble Brothers and Sisters:

Searl craft can be constructed quite cheaply in comparison with chemical rockets as used by NASA. They do not carry fuel but absorb space energy as does an interstellar ram jet. This energy is present everywhere in the universe, both in the palace and in the humblest backwoods cabin. By virtue of Searl's discovery, we will be able not only to conquer space, but also to make a paradise upon our planet Earth. Please join with us to make Space Project Swallow a success.

* * * * * * * * * * * * *

NOTES ON MR. J.R.R.SEARL

Background

In 1949, Mr. J.R.R.Searl was employed by the Midlands Electricity Board as an electronic and electrical technician. He was very enthusiastic about the subject of electricity, although he had no formal education, outside that demanded by the job, on the subject. Unhindered by conventional ideas about electricity, he carried out his own investigations in this field.

During his work on electric motors and generators, he noticed that a small electromotive force was produced by spinning metal parts, the negative charges moving toward the outside, and the positive charges toward the rotational axis. In 1950 he experimented with rotating slip-rings and measured a small electromotive force on a voltmeter. He also noticed that when the rings were spinning freely and no current was taken, his hair bristled. His conclusions were that free electrons in the metal were spun out by centrifugal force, while a centripetal force was produced by the static field in the metal. He then decided to build a generator based on this principle. It had a segmented disc rotor, which passed through fields generated by electromagnets at its periphery. The electromagnets were energized by the rotor, and were intended to boost the electromotive force.

By 1952, the first generator had been constructed and was about three feet in diameter. It was tested in the open by Searl and a friend. The armature was set in motion by a small engine. The device produced the expected electrical power but at an unexpectedly high potential. At relatively low armature speeds a potential of the order of 10^5 volts was produced, as indicated by the static effects on nearby objects. A characteristic crackling and the smell of ozone supported the conclusion. Then the really unexpected occured. The generator lifted while still speeding up, broke the connection between itself and the engine, and rose to a height of 50 feet. Here it hovered for awhile, still speeding up, and surrounded itself with a pink halo. This indicated ionization of the air at a much reduced pressure, about 10^{-3} mm. the pressure of mercury. More interesting yet was the side effect causing local radio receivers to go on of their own accord. This could have been due to ionizing discharge or electromagnetic induction. Finally, the whole generator accelerated at a fantastic rate and is thought to have vanished into space.

Since that day, Searl and others have made some ten or more small flying craft, some of which have been similarly lost, and developed a form of control. Larger craft have also been built, some 12 feet, and two 30 feet in diameter. The antics of his machines have given rise to much speculation as to the nature and origin of so-called "flying saucers". One wonders why Searl has not come to the notice of scientists and the public at large. The fact is that he has, but for fear of being ridiculed, people keep the knowledge or interest to themselves. The public has been educated to scoff at the subject of flying saucers and the reported behavior of things which cannot be explained by current scientific theory.

THE SEARL EFFECT

Any theory must explain the various phenomena, some of which have been observed by Searl himself and some by the general public. Associated with the Searl-effect craft are the following:-

1. Antigravity or levity.

2. Very high electrostatic fields.

3. The peculiar magnetic effect.
   The generator produces direct current, a static field with negative polarity at the edge and positive at the center. However the magnetic field from the generator produces induction in conductive loops when there is no relative movement. It seems that the flux from the generator is continually expanding. This implies an unlimited quantity of energy.

4. Perpetual motion.
   Once the machine has passed a certain threshold of potential the energy output exceeds the input. From then on the energy output is virtually limitless. The estimated power output of the generator is some 10^{14} or 10^{15} watts, which was predicted by Seike's calculations, derived independently, and published in the first edition of Principles of Ultrarelativity.

5. Inertia loss.
   Above the threshold potential which must be some 10^{13} volts the generator and attached parts become inertia free.

6. Flight control.
   By changing the distribution of potential on the surface of the craft it is possible to propel the craft. The prevailing course of travel by ultra-high speed is away from this planet as the level of the generator is at right angles to the gravitational field. In horizontal flight the craft takes up an angle that indicates a balance between vector fields. The generator may create its own gravitational field.

7. Ionization of the air.
   This is a simple electrostatic effect. It gives rise to a translucent glow surrounding the craft. The intensity of the field is such that it can keep the ionized air at a distance by creating an almost total vacuum around the craft.

8. Permanent electric polarity.
   Searl noticed that after working near the craft or generators he had a 'cobweb' sensation on the skin. His clothes clung to him, and also the bed linen. This was accompanied by occasional crackling and lasted some hours. This effect could be attributed to a permanent polarity of dielectric material, in this case the material being body tissue and clothing.

9. Matter snatch during acceleration.
   This occurs when the craft is on the ground and the drive is suddenly switched on. The rising craft takes up a lump of soil with it, leaving the well-known hole in the ground.

(10) The outer shell shall be constructed of non-magnetic materials.

(11) The materials utilized in the outer shell construction shall be made electrically conductive.

The craft is in the shape of a disc; at this very moment a twenty-one (21) foot diameter craft is under construction as a test bed. It is the prototype for designing a much larger craft for Manned Flight.

As the craft may be designed to perform in many different fields, there are indeed many advantages over present day craft: no runways or launch pads are needed as it is a VTOL Craft; there will be no noise or sonic booms, no vibration or heat; it will be capable of very high velocities. Another great blessing to the human race is that it will not pollute our atmosphere, nor does it require oxygen to be drawn from the air.

As this project is so vastly important to the world, I ask that you give it your earnest consideration and support. Please remember that an investment in the Levity Disc is an investment in the future well-being of every member of the human race.

Written at 17 Stephens Close, Mortimer in the County of Berkshire, England, by the hand of one of Her Majesty's Loyal Subjects, on the fifteenth day of May, 1972.

John R. R. Searl
Director of Contracts
Manned Flight Division

(Substance of Mr. Searl's letter to Queen Elizabeth and Officials of the British Government, accompanying copies of the preliminary drawings.)

THE SEARL LEVITY DISC GENERATOR

The generator is a three ring arrangement. The inner ring is fixed to the housing wall. The other two rings rotate freely. The outer ring travels at a velocity twice that of the middle ring. Both rings travel in the same direction. Each ring is arranged so that there is a low resistance in one direction only, towards the rim of the craft. But the return path increases in resistance toward the fixed ring.

Electromagnets at the rim receive the current from the generator and reconvert it to spin in the rings; consequently the load on the starter motor becomes less, and it spins almost freely. The magnets are designed as monopolar Mobius rings or Klein bottles. The formula of these autogenic ceramic electromagnets, and the 'prime mover' constitute the real secret of the Searl Levity Disc Generator.

Some of the technologies involved in the operation of the Levity Disc Generator include:

- gyroscopes
- ball-races
- flywheels
- cyclotrons
- electronics/magnetics

A flame barrier is necessary between the generator housing and the flight cells at the periphery. But because the craft travels in a vacuum, the fireball seen by observers is only a corona glow of electrified air, not a burning surface of the disc.

The angle of the cross-section of the disc at the periphery determines the stress/tension factor of the gravitational field generated. The gravity flux generated by the craft can be partly directed through the cabin to give weight to the matter inside.

SEARL NATIONAL SPACE RESEARCH CONSORTIUM

17 Stephens Close
Mortimer
Berkshire, RG7 3TX
England

May 15, 1972

To Whom It May Concern:

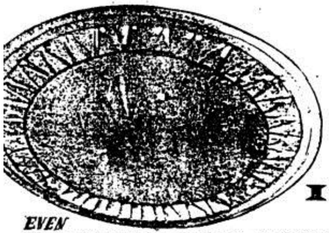
I would like to submit these two drawings for your consideration as one of the greatest inventions of our times to mankind.

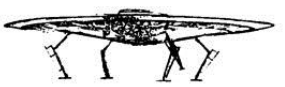
I think you will appreciate the immense value of this project to the world as a whole, if you will be kind enough to read the enclosed facts.

1. It is British. It is the development of air and space craft for passengers and freight which can operate in the air or space without taking with it any fuel from the Earth. As far as we can certify, there is no set limit to the movements of the craft in space.

2. The craft is called the SEARL LEVITY DISC. I, John Roy Robert Searl, the Rightful Inventor, declare this invention to be described in the following statement:

> The Levity Disc is a new concept in space and air vehicle technique developed to accommodate an advanced drive complex, the nature of which having determined the shape and limiting structural criteria of the vehicle described thus:
>
> (1) The minimum and maximum deflection angles for the outer shells at the periphery shall be not less than six degrees and not greater than eight degrees.
>
> (2) The periphery shall be of negative polarity.
>
> (3) The summits shall be of positive polarity.
>
> (4) The merging of the outer shells at the periphery shall be an acute absolute.
>
> (5) The merging of the outer shells at the summits shall not be an acute absolute.
>
> (6) The merging of the outer shells at the summits shall be spherical in nature.
>
> (7) The fixed ring to the generator shall hereafter be described as being the ring nearest the summits.
>
> (8) The distance between the fixed ring and the peripheral rim shall not be greater than one-tenth of the vehicle's diameter.
>
> (9) The distance described in (8) alone shall be reserved to accommodate the flight reaction controls.





Since 1952- thirty-inch Searl Levity Discs have been flown

Introduction

EVEN If you haven't heard of the Searl National Space Research Consortium, you are likely to seek opinions on this subject of whether Flying Saucers are a real engineering possibility. Everyone has an opinion, but often they are based on partial knowlege or out-dated concepts. My own difficulty in this matter is the fact that I do not have any experimental knowlege. Your best bet is to get information from the Consortium directly, or to question the investors who have greater technical knowlege.

The first information I found on Searl was in the November 1971 Star Magazine article; "He Goes for Levity." This has triggered me to follow interests I've had in electricity, especially to enjoy the displays of large voltage, and to build a generator. The key to Searl's Levity Discs is his generator which develops potentials of almost 10^{14} (100,000,000,000,000) Volts. I don't think this refers to the acelleration of a single electron, but to the "Gap" at the circumf. of a thirty inch disc. 500,000 Volts, for example, arcs across 15 inches of air gap. There is not this much distance between the rim of the Searl Disc and the positive potential.

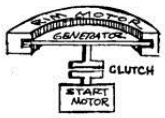
If your "belief" has balked at this point, it's due to insufficient data. Note the sharp edge of the disc. It's directed away from the positive potential just inside the moveable panels. Electric wind, the same phenomena which spins a little pinwheel atop a laboratory Van De Graaff makes possible a very large potential across a small gap by directing the electrons away from the positive.

There are many more subtleties in the device which physicists still argue. You will have to study things from the 1831 Faraday Disc, to the Betatron, and atmospheric physics in order to develop a feel for the forces interacting in this device.

The experience many people are looking for, and which I'd like also is to see one of these fly, and to poke at all its parts. To this date the Consortium has not revealed the specific details of the generator. However, there is sufficient description in the Newsletters to direct experiments. The arguments against disclosure are serious ones, generally directed against irresponsible use. For one thing, at high accelleration, electrons produce X-ray. Further, industries would demand ownership as they have of many devices now classified. This one is particularly easy to keep under wraps. Searl is trying to build a very large craft for Solar System investigation, owned by shareholders around the globe. Unfortunately this aim is labeled 'idealistic' and therefore suspect. However, it is a very mature grasp of a survival principle. Just consider the uses to which this thing can be put by short-sighted people.

On the lighter side, let's look at some experiments the backyard gadgeteer can set up toward building his own flying saucer.

I. Practical, "Classical" Mechanics



The generator, as pictured here has a starting motor which is conventionally powered by chemical processes, such as gasoline or diesel, or coal. This is coupled to the generator by a hysteresis or eddy current drive, or fluid clutch. This drives the generating disc which builds up the exciting current on its rings. Current induced by the resulting flux is moved on segments also on the disc, between the rings. The purpose of the division into segments is to prevent circulation of current here, limiting current circulation to the rings which act as the coil for the iron field pieces.

Finally, electromagnets at the rim receive the current from the generator and reconvert it to "spin" on the disc. Consequently, the load on the starting motor becomes less, and it spins almost freely.

This arrangement would make no sense if a wire were joined from the other end of the electromagnet, completing the circuit to the axle. There would then be no difference in potential between the center of the disc and the edge. Our purpose is to create this difference in potential, and to maintain it. Then, the design makes sense, and the difference is maintained despite the fact that the current is used up by the rim motor.

It is important to note that generator drag, resistance due to heat and frictional losses of power make it impossible to keep the generator running by the rim motor alone. The torque required to create a given current is always greater than the torque that can be created by an electric motor using that same amount of current.

The best that can be hoped for is a carefully matched, optimum design of generator and rim motor. A further move toward efficiency is to evacuate rings and segments at the centers of magnetic flux to under .01 microns so electrons can exceed cyclotron frequencies.

II. Pair Annihilation Theory

According to this idea, the generator can be kept running by the rim motor alone, and speeds up at that. This is due to the very high potential of near 10^{4} Volts. If X-ray type radiation of at least 1.02 million Volts is produced, then the conditions for pair creation exist.

In the difference in potential we are talking about, there is a lot of latitude for that condition. In addition, electrons acellerated by the generator lose their momentum through the motor at the rim, returning them to a speed slow enough for pair annihilation to take place.

At low potential, the removal of electrons from the air at the center of the generator is difficult. As the difference builds up, the collisions between particles generate acellerated electrons which either turn into, or generate high energy photons. Interactions between these high energy particles produce three effects: the Photoelectric Effect, Compton Scattering, and Pair creation.

With Pair creation, the incident Photon must be above 1.02 Mev. It interacts with the Coulomb forces surrounding the Nucleus to produce an Electron (Negatron) and its anti-particle, the Positron. Each of these has a rest mass of .51 Mev., and they spin away from the atom in opposite directions. In order for Pair Annihilation to take place, they must come together gently.

The Negative Ion which approaches the center of the generator loses its electron, but retains the Positron and is repelled from the positive center of the disc, to travel out to the negative edge. The Electron, meanwhile has been driven through the generator, accellerated, and through the motor at the rim, decellerated to meet Positive Ion and its Positron at the sharp perifery of the craft. Here, Pair Annihilation takes place, and the Positive Ion must pick up an additional electron before it is repelled away from the edge, away from the craft.

This unraveling of particles into high energy photons, and their Compton Scattering and Photoelectric Effect on the negative ions attracted to the center of the generator make electron detachment very easy.

One more item makes an energy difference between the center of the disc and the edge which favor accelleration of the generator by the rim motor. Not only the Negative Ions turned into Positive Ions pick up electrons at the edge. Other positive ions from the atmosphere which had no interaction with the center of the disc are freshly attracted to the edge and carry off electrons. Neutral ions are produced, lower energy state than original ions.

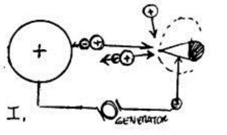
III. Diamagnetic Field Theory

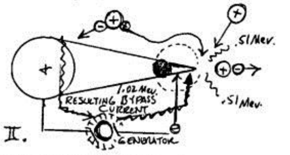
Diamagnetic materials are repelled by very strong electro-magnetic fields.

Electro-magnetic fields increase in effect when they are rotated.

Perhaps a diamagnetic field of sufficient strength, rotated rapidly, would be repelled by even weak electromagnetic fields.

In the Diamagnetic theory of Eugene Burt, an inverse square law is called for, accounting for repulsion of the electron from the nucleus at very close distances. At greater distances, the electron is attracted to the nucleus. The "saucer" effort is to so increase the tiny repulsive force that it will have a long-distance effect.





In situation I., ordinary ionization in electrical discharge: ion goes from one pole to the other, transporting electrons.
In situation II., Pair Annihilation releases high energy photons, contributing this energy to stripping electrons from ions from which they are easily pulled into generator. For positive ions, picking up electrons is made easy at the edge. The 1.02 Mev. from each pair annihilation is what provides electrical current to make Rim Motor outrun the generator drag.

Some References:

American Institute of Physics Handbook, 1972, published by McGraw-Hill, Inc.

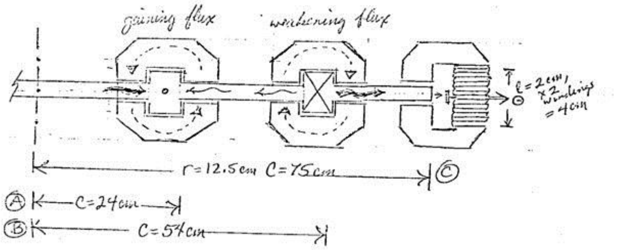
Searl National Space Research Consortium Newsletters. Available from William T. Sherwood, 200 Pinnacle Road South, Rochester, N.Y. Searl Discs have flown since 1952, developing a potential of almost 10^{14} Volts. The Consortium is building a very large disc for scientific exploration of the solar system. Public support is needed.

The Principles of Ultra Relativity, by Shinichi Seike. 1972. Send to Shinichi SEIKE 4 no. 12, 1 Chohme, Ohmiyachoh, Uwajima City, Ehime Prefecture (798), Japan. $7 plus $5 airmail postage is $12, and faster than surface mail.

UFO's and Diamagnetism, Eugene Burt. EXPOSITION PRESS, 50 Jericho Turnpike, Jericho, N.Y. 11753

Numerous books on UFO subject: Lionel Beer, 15 Freshwater Court, Crawford Street, London, W.1.

For data on the latest experiment, and Frogstein Papers, send $3.00 to Galactic Rim Time Travel Institute in Talbott Village.



A THEORETICAL MODEL OF THE "SAUCER ENGINE"

Figures are started assuming 10,000 Volts in ring Ⓐ and Ⓑ, and in electromagnet Ⓒ.

FIGURING THE MAGNETIC FLUX: $\rho = 1.72\times10^{-8}$ Ohm for Meter Cube of Copper

Ⓐ $R=\frac{\rho l}{A}$ A = .01 Meter X .02 Meter area of ring cross-section = .0004 M^2

$R=\frac{1.72\times10^{-8}}{.0004}\times 24=\frac{41.28}{.0004}=10.32\times10^{4}$ ohm

$I=\frac{E}{R}=\frac{10{,}000\ \text{Volts}}{10.32\times10^{4}}=9.6\times10^{-2}$ Amp

Flux $B=\frac{2i}{a}\times10^{-7}=\frac{.192}{.01}\times10^{-7}=19.2\times10^{-7}$ Weber

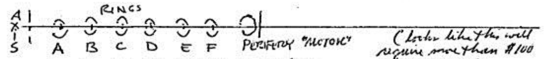
Ⓑ $R=\frac{1.72\times10^{-7}\times54}{.0004}=\frac{92.88\times10^{-8}}{.0004}=23.22\times10^{4}$ Ohm

$I=\frac{E}{R}=\frac{10{,}000}{23.22\times10^{4}}=4.3\times10^{-2}$ Amp.

Flux $B=\frac{.086}{.01}\times10^{-7}=8.6\times10^{-7}$ Weber

Ⓒ Magnetic Field of a Solenoid. 0000 Gauge Wire, .0491 ohms/Meter
One Meter wraps 25 Times around 1 cm, square core.
Flux $B=\frac{2i}{a}\times10^{-7}\times\sin\alpha$ Four sides, so $B=\frac{(8)(20)(\sin 45^\circ)10^{-7}}{.01}$
and $B=\frac{\mu N i}{l}$, figuring 100 sides, and calling coil length 4 cm for l
$\mu=K_m\mu_0$ K is 12.57×10^{-7} Webers for air (I don't have permeability figure for iron core) use μ_0 as 1.00 $B=\frac{12.7\times10^{-7}(25)20}{.04}=1571\times10^{-5}$ Wb.

USING A 2-FOOT DISC TO REDUCE RPM REQUIREMENTS



(looks like this will require more than #100 worth of copper)

4 9 14 19 24 29 Centimeters r

.24 .54 .84 1.14 1.44 1.74 METERS CIRCUMFERENCE TOTAL: 5.94

The average circumference is ∴ 1 Meter Velocity = ω × Circumf.

An arbitrary air breakdown potential: 240,000 Volts.

Output from ring F has to be 2 X 240,000 volts, as only half of induced voltage goes to periferey Motor — the other half returns to ring E.

$R = \frac{\rho l}{A}$ .015 ☒ .01 l = 1 Meter Ring area = .00015 Ring l = 1 Meter

$\rho = 1.72 \times 10^{-8}$ for cu/M copper. $R = \frac{1.72 \times 10^{-8} \times 1}{.00015} = \frac{172 \times 10^{-6} \times 1}{15 \times 10^{-5}}$ = about 1 ohm

---

$I = \frac{E}{R}$ starting Amps. $\frac{240,000}{1}$ = 240,000 Amps, as breakdown potential is the starting potential, always remaining on rings.

Starting flux: $B = \frac{2i}{a} \times 10^{-7}$ a = arbitrary .01 Meter from flux center.

$B = \frac{480,000}{.01} \times 10^{-7} = 4.80$ Webers.

To find ending flux to produce 2X air breakdown potential: E = Blv l = .02 Meter

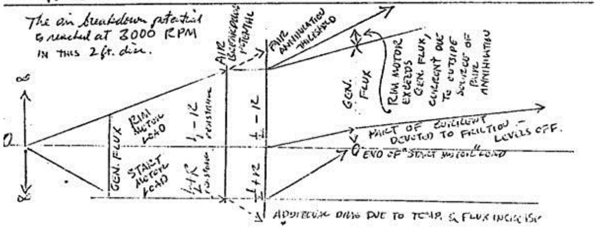
$4.80\,\omega + B\omega = 480,000$ "B" in this case is ending flux.

$\omega(4.80 + B) = 480,000$ $\omega = \frac{480,000}{4.80 + B}$ $B = \frac{480,000}{.02\omega} - 4.80$

Substitute "ω" term for the "B": $4.80\,\omega + \frac{480,000}{.02\omega} - 4.80\,\omega = 480,000$

$\frac{480,000}{.02\omega} = 480,000$ $.02\omega = .02 \boxed{1\ \text{rps}}$ ω = 50 rps ~3000 R

The air breakdown potential is reached at 3000 RPM in this 2 ft. disc.


∞
0
∞
GEN. FLUX
RIM MOTOR LOAD
START MOTOR LOAD
$I_1 - R$ resistance
$\frac{I_1}{2} + R$ resistance
AIR BREAKDOWN POTENTIAL
$I_1 - R$
$\frac{I}{2} + R$
PAIR ANNIHILATION THRESHOLD
GEN. FLUX
RIM MOTOR EXCEEDS GEN. FLUX, CURRENT DUE TO OUTSIDE SOURCES OF PAIR ANNIHILATION
PART OF CURRENT DEVOTED TO FRICTION — LEVELS OFF.
0 END OF "START MOTOR" LOAD
ADDITIONAL DRAG DUE TO TEMP. & FLUX INCREASE

BASIC FORMULAS: E = Blv Volts = Mag. Flux. (conductor length) Velocity, $B = \frac{2i}{.01} \times 10^{-7}$

Mag. Flux = $\frac{\text{2 Amps.}}{\text{Distance from flux center}}$ × A Special Constant, $I = \frac{E}{R}$ Amps = $\frac{\text{Volts}}{\text{Resistance}}$, $R = \frac{\rho l}{A}$

Resistance = $\frac{\text{"Rho" (conductor length)}}{\text{Area of conductor cross section}}$, "Rho" is 1.72×10^{-8} Ohms for 1 cu. Meter of Copper

INNER RING Ⓐ is .36 Meter Circumference, RING Ⓑ is .60 Meter circumference, Veloc. = Circumf × ω

ω, "Omega", refers to rps., 60 × ω = RPM, RPM is 3000 in this case so ω = 50

Ⓐ

l = 2 cm. segment × 36 cm = 72 cm, or .72 Meter

$E = B(.72)\,50 \times .36 = 12.96\ B$

$R = \frac{1.72 \times 10^{-8}(.36)}{.0002} = 3096 \times 10^{-2}$ Ohm

$B = \frac{2\,\frac{E}{3096 \times 10^{-8}} \times 10^{-7}}{.01} = \frac{.00064\,E \times 10^{8}}{.01} \times 10^{-7}$
$= 64E \times 10^{-2} = .64\,E$ (ON RING)

INDUCED E = 12.96 (.64 E on ring)

INDUCED E = 8.2944 E on ring (roughly 7.2)

Ⓑ

l = 2 cm. seg × 60 cm = 120 cm. or 1.20 Meter

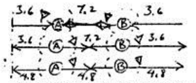
$E = B(1.20)\,50 \times .60 = 36\ B$

$R = \frac{1.72 \times 10^{-8}(.60)}{.0002} = 10320 \times 10^{-8}$ Ohm

$B = \frac{2\,\frac{E}{10320 \times 10^{-8}}}{.01} \times 10^{-7} = .2\,E$ (ON RING)

INDUCED E = 36 (.2 E on ring)

INDUCED E = 7.2 E on ring

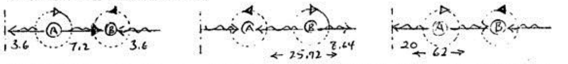


INWARD INDUCING FLUX BECOMES 7.2 ON EACH RING AND REVERSES AT PEAK INDUCTION

REVERSED FLUX CAUSES OUTWARD INDUCTION

WOULD CURRENT LOSS DISTRIBUTE THIS WAY?

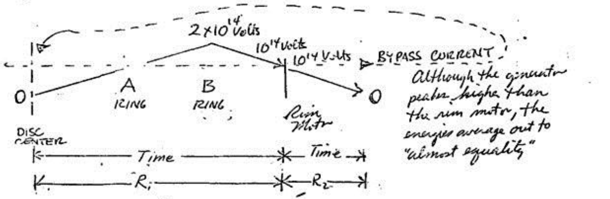
A QUICK GLANCE AT ALTERNATING CURRENT THEORY SHOWS A DIFFERENCE IN TIMING BETWEEN CURRENT AND INDUCTION DUE TO THE CURRENT. WE ARE INDUCING ONTO THE RINGS A CURRENT 7.2 TIMES THE CURRENT ALREADY ON THE RINGS



IF THIS SORT OF INDUCTION TAKES PLACE, A VOLTMETER OR AMMETER ATTACHED TO HUB AND RIM WOULD FLUCTUATE FROM ⊕ TO ⊖ AT GREATER AND GREATER AMPLITUDES AND GREATER AND GREATER FREQUENCIES. IF THE 8.2944 IS TRUE FOR RING Ⓐ PERHAPS THE HUB WOULD AT FIRST BECOME NEGATIVE UNTIL POTENTIAL INDUCED BECOMES OVER 10,000 VOLTS. THESE ELECTRONS WOULD TEND TO MOVE OUTWARD ON THE DISC BECAUSE OF THEIR GREATER MASS (RELATIVISTIC MASS)

THE 2-RING IDEA IS JUST FOR THIS EXPERIMENT. A 24-INCH ROTOR OF THE SAME SCALE WOULD ACCOMMODATE 5 RING. A 3 ft. ROTOR WOULD HOLD 9.

ASIDE FROM SPINNING DISC TO PROMOTE ELECTRON 'STARVATION' AT AXLE, THE SOFT CONTOUR AT CENTER PLATES ABOVE & BELOW GEN. FAVORS ⊕ CORONA, & NEEDLE EDGE FAVORS HARSH NEGATIVE CORONA, FOR THE SORT OF RECTIFICATION ACCOMPLISHED BY AN A.C. TESLA COIL.



Although the generator peaks higher than the rim motor, the energies average out to "almost equality"

E = Blv can be used to show the speed at which the disc must turn for the Rim Motor to degrade the entire output of the generator. This requirement becomes less and less speed the lower the potential. We'll figure this in an inverse matter, treating the rim motor as a generator. The higher the flux, the slower it needs to turn to produce a given voltage.

FROM 1000 Volts

Coil $\left\{ B_1 = \frac{12.7 \times 10^{-7}(25)\,20}{.04} = 1571 \times 10^{-5}\ \text{Web.} \right.$

Seg. $\left\{ B_2 = \frac{2i}{a} \times 10^{-7} = \frac{2(20)}{.01} \times 10^{-7} = 40 \times 10^{-7}\ \text{Weber} \right.$

Rim as generator:

$E = (B_1 + B_2)\,.01\,V = (157 \times 10^{-5} \times 40 \times 10^{-7})\,.01V = 15740 \times 10^{-6}\,V$

$\text{Veloc.} = \frac{10,000}{15740 \times 10^{-6}} = 6 \times 10^{5}$ M/sec.

FROM 10^{14} Volts

$I = \frac{10^{14}}{.04901} = 204 \times 10^{19}$ Amps.

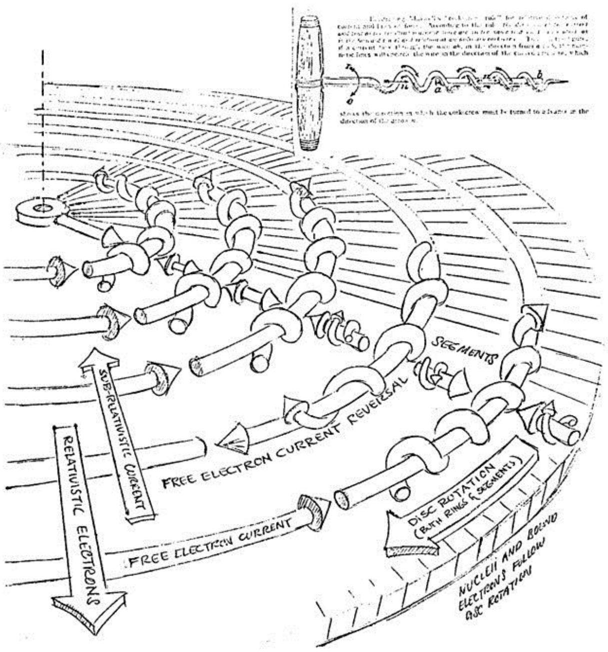
Coil $\left\{ B_1 = \frac{\mu N i}{l}\right.$ N = 25 loops. l = 4 cm
$B = \frac{(12.57 \times 10^{-7})\,25(204 \times 10^{15})}{.04} = 64107 \times 10^{14}$ Weber

Segment $\left\{ B_2 = \frac{2i}{a} \times 10^{-7} = \frac{2(204 \times 10^{19})}{.01} \times 10^{-7} = 408 \times 10^{14}\ \text{Weber.} \right.$

Rim as generator:

$E = (B_1 + B_2)\,l.V = 64107 \times 10^{14} + 408 \times 10^{14} \times .01$
$10^{14} = 104907 \times 10^{26} \times .01 \times V =$
$\text{Veloc.} = \frac{10^{14}}{104907 \times 10^{10}} = .09$ M/sec.

Don't forget, the Start Motor must be contributing momentum, or the system will come to rest. A tremendous generator could feed in electrons where BYPASS CURRENT appears in the diagram. Then, a "start" motor would not be necessary, However, this would have to be "way up there" in billions of volts, because it would gather in the rings for stronger and stronger flux.


SEGMENTS
SUB-RELATIVISTIC CURRENT
RELATIVISTIC ELECTRONS
FREE ELECTRON CURRENT REVERSAL
FREE ELECTRON CURRENT
FREE ELECTRON CURRENT
DISC ROTATION (BOTH RINGS & SEGMENTS)
NUCLEII AND BOUND ELECTRONS FOLLOW DISC ROTATION

Great American Mural

FLYING SAUCER FLIGHT & ENGINE THEORY

GAM
2129 N. TALBOTT ST., INDIANAPOLIS, INDIANA 46202

MUSEUM ★ 2129 N. Talbott ★ Indianapolis, IND.

SEARL NATIONAL SPACE RESEARCH CONSORTIUM

UNITED KINGDOM DIVISION

Newsletter No. NSRC 1-C   Volume 1, Section 2   Dated June 14, 1971

A DISCUSSION OF THE SEARL DISC ON THE BASIS OF MY KNOWLEDGE OF SCIENTIFIC POSSIBILITY

by

Bernhard Vaegs
Studio for Electro-Physics and Bio-Electricity

On "The Production of Electricity by Means of Rotating Discs":

This is possible through the alteration of magnetic lines of force in segmented discs, (in the magnetic mode), and through induced charge, (in the electrostatic mode).

I. Magnetic Mode:

(a) With a Disc between a Pair of Magnetic Poles:

(1) Known as Michael Faraday's (1791-1869) demonstrations apparatus for producing electricity in the presence of a magnetic field. The machine consists of a copper disc about 30 cm. in diameter, which can be rotated between the poles of a magnet.

(2) Known as the inverse of the Barlow-disc, in which, as with the aforestated Faraday apparatus, one electrical terminal is the center of the disc, (the axis). However, while in the Faraday disc the other terminal is a sliding contact against the rim of the disc, in this case, the rim of the disc touches mercury in a trough, to make the second terminal.

(b) Rotating Discs without Magnets:

The electro-physicist Palmieri is said to have succeeded, in his day, by means of rotating copper rollers (discs?), in producing sparks and in electrolyzing water. Here the earth's magnetic field played the part of the magnetic pole-pair, just as it does in the "earth-inductor", (an instrument for measuring the strength of the earth's magnetic field). This magnet-less induction of electrical potential had already been demonstrated by Faraday. In one experiment he immersed two electrodes in the Thames River. The measuring apparatus proved that water flowing at an angle to the natural geomagnetic field induced an electrical potential with the interaction of the tides of the English Channel with the earth's natural magnetic field.

II. Electrostatic Mode:

According to one expert, a (horizontally only ?) rotating disc develops static electricity. The underside becomes negatively charged, the topside, positively charged, or the reverse, depending on the direction of rotation.

If we think of this rotating disc as an electrical condenser, then we can see some interesting parallels with the condenser experiments of Professor Bielefelds, in the USA. He discovered that plate-condensers having negative charge on the lower surface and positive charge on the upper surface were measurably lighter in weight, and with the reverse charge, heavier. T.T. Brown, a colleague of Professor Bielefeld, performed exhaustive experiments to find the optimum form of condenser for weight modification. ("Fudji-Jama-Profile")

On "Vacuum surrounds the electrically charged Searl Disc":

I. The "electric wind" which comes from points and raised places under certain conditions of high electrical charge is sufficient, with a strong electrostatic generator, to blow out a candle. Here apparently the air is so strongly repelled by the charged disc, that a vacuum is formed around it.

Major de Seversky, who lives in USA, made a flying device, (nicknamed the "flying bedstead"), which worked by means of electrical wind. Likewise, he invented a motorless ventilator which was based on the principle of electrical wind.

II. It would be an omission at this time not to mention the aerodynamic phenomenon in connection with discs, known as the Coanda or Tornado effect. This was the principle on which the Canadian Avro experimental saucer was based, some years ago. This effect causes a disc to rise, as if in the center of a tornado, when air rushes across the rim, through the action of backward-directed jets. If we think of the "electric wind" as the jet, we can readily see that the disc would be lifted up. (The Coanda effect and the Bielefeld-Brown effect both manifest a kind of levitation. Could not the Searl Disc be a demonstrtion of a wonderful integration of many natural forces working together towards this end?)

III. Research engineer R. Schaffranke recalls, in his article in "UFO-Nachrichten", the discovery made by P. Lenard in Paris (1894). He writes: "...to his surprise, Lenard noticed that the electrons of this (cathode) bundle of rays were able to produce a kind of vacuum tunnel in the air, since the negative ions of the atmosphere seemed to be absorbed. In the process, it seemed that air was removed, forming a vacuum. The surrounding air naturally tended to flow towards this vacuum, and it was possible to regulate the stream of air by controlling the electron density, or potential. The ionized surfaces of an aircraft or spacecraft tend to be drawn into the vacuum created and maintained around the craft by an ionization source. As a result, the craft no longer moves against a wall of air, atmospheric pressure and air-resistance in front of the craft are reduced or almost completely eliminated; in short, the already established empirical effects indicate a means by which (air-)craft may travel faster and farther by overcoming drag. If the vacuum is produced on one side of the craft only, then the normal atmospheric pressure against the other provides an effective propulsive force, and in this way the craft can be made to rise, and its weight seemingly counteracted..."

On: "A pink halo surrounded the craft."

The luminous effect, or high tension glow, associated with the cathode (negative pole) of a Geissler tube consists principally of the pink glowing so-called "positive columns".

On: "Potentials on the order of 10^{13} to 10^{14} volts".

These potentials are far higher than those produced by Tesla in his Colorado Springs (USA) experiments, some years ago. Even today, we can generate only about 2 x 10^7 volts by means of a belt generator. The associated current seldom exceeds 1.5 milliamperes.

Bernhard Vaegs
3393 Hahnenklee-Bockswiese
Postfach 1247
Germany (West)

Translated by W. T. Sherwood

Bibliography follows the copy in German.

Quellen-Verzeichnis:

1) Schaffranke: "Schwerkraftforschung u. UFOs" in UN Nr. 167
2) "Lehrbuch der Experimental-Physik" Band II, Elektrizitatslehre von Bergmann-Schaefer
3) Lindner: "Lehrbuch der Physik" Leipzig 1955
4) E. Honoldt: "Reibungselektrizität" II Teil, Verlag Maier, Ravensburg
5) Life Bildsachbuch: "Die Maschinen" S. 117
6) Zeitschrift "X", Artikel uber MHD-Generatoren
7) "Bio-Medical Engineering" April, 1970

Shinichi SEIKE

G-Strain Amplifier / Monopole Coil

Shinichi SEIKE
G Research Institute
Box 33
UWAJIMA/Ehime (798)
JAPAN

T. Obata: Does the Gravity on Coils of Peculiar Winding Decrease While Electric Currents Flow in the Coils?
S. Seike & K. Tomiyoshi: Japanese Patents
J-L. Naudin: Replication of Seike's G-Strain Amplifier
L. Belfroy: G-Strain Amplifier Tachyon Energy
S. Seike: Lecture
S. Seike: *The Principles of Ultra Relativity* (Excerpts)

---

http://www.emacademy.org/piers2k3/pdf/Obata.O.pdf

Does the Gravity on Coils of Peculiar Winding Decrease While Electric Currents Flow in the Coils?

Tsunehiro Obata, Akiko Ono
(Gunma National College of Technology, Japan)

Many people seem to feel that there must exist a relation between gravity and electricity. Many attempts in this direction have been made. Faraday, for instance, devised experiments in 1850 to find a possible relation between gravity and electricity. After many experiments he could not find any effect. His closing remarks [1], however, encourage many researchers working in this direction.

"Here end my trials for the present. The results are negative. They do not shake my strong feelings of the existence of a relation between gravity and electricity, though they give no proof that such a relation exists."

Since then there have been an enormous number of theoretical and/or experimental investigations searching for a relation between gravity and electricity from different points of view. About thirty years ago, Seike [2] published an exotic theory, ultra relativity, and also he devised coils of peculiar winding, called Klein coils and transistor coils. The weight of these coils was reported to gradually decrease while electric currents flow in the coils. Such coils have extensively been studied by Matsumoto and his students about 1990 [3]. Their experiments also support Seike's statement. However, the experimental results on the peculiar coils are not authorized. The present authors think that the experiments are not careful enough to investigate various factors responsible for the apparent decreasing of the gravity on the coils.

On the background, the authors executed supplemental experiments on Klein coils and transistor coils with the improvement which removes some factors responsible for the apparent decreasing of the gravity on the coils. The Klein coils were wound by themselves, while the transistor coils were borrowed from Matsumoto through the courtesy of him. The weight of the coils with electric currents was measured by a usual electronic balance. The improved experiments seem to support the decreasing of the gravity on the coils at the present time, but the authors are now executing the experiments with further carefulness. The details of the experiments will be expressed in the symposium.

References --

[1] Closing remarks of M. Farady from A. K. T. Assis, Deriving Gravitation from Electromagnetism, Can. J. Phys., Vol. 70, 330, 1992.

[2] Seike, S.,The Principles of Ultra Relativity, revised ed., Japan Division, National Space Research Consortium, Uwajima City, Japan, 1970.

[3] Matsumoto, M., A series of graduation thesis researches directed by him, (unpublished).

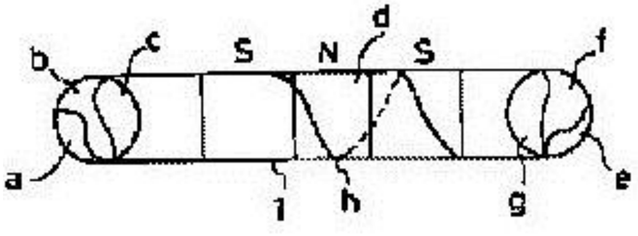
Japan Patent # 6267735

(PDF)

Single-Polar Magnet & Manufacture Thereof

9-22-1994

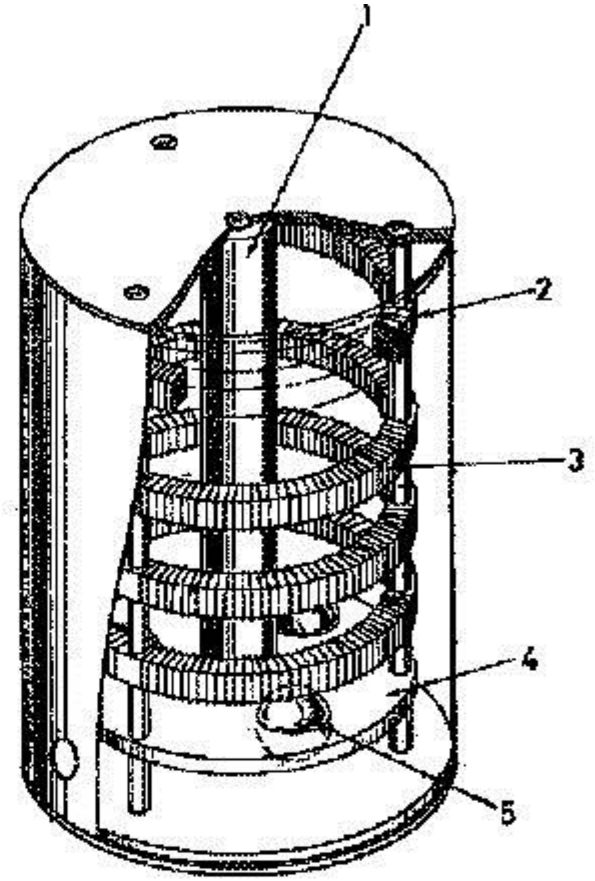
Shinichi SEIKE; Kazusumi TOMIYOSHI



Classification:- international: H01F1/04; H01F7/02; H01F13/00; H01F1/032; H01F7/02; H01F13/00; (IPC1-7): H01F7/02; H01F1/04; H01F13/00

Abstract --- PURPOSE: To provide a quasi-singlepolar magnet the whole of which is almost N-pole or S-pole. CONSTITUTION: A conductive wire is wound by the Mobius winding around a magnetic pole member 1 consisting of rare earth element such as neodium or praseodium. The coil of the Modius winding is energized with a pulse current in order to magnetize the magnetic member 1. Then, the end parts having one magnetic pole (S-pole) of the resultant magnetic member 1 is cut apart from the center part having another pole (N-pole). Only the end parts of the same pole (S-pole) are bonded with an adhesive agent or the like, thereby forming a quasi-singlepolar magnet.

Japan Patent # 6284758
(PDF)
Single-Pole Magnet & Cell Using This Magnet
10-07-1994
Shinichi SEIKE

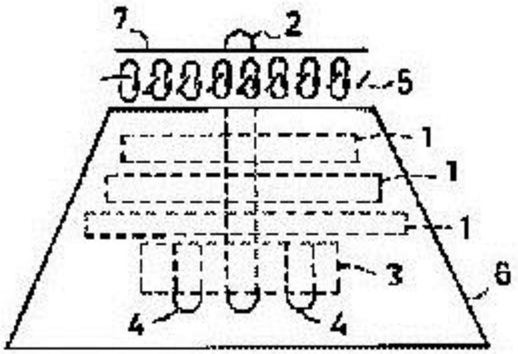


Classification: - international: H02N11/00; H02N11/00; (IPC1-7): H02N11/00

Abstract --- PURPOSE: To provide a cell capable of obtaining electrical energy without giving external energy by developing a single-pole magnet. CONSTITUTION: A cell is composed mainly of a single pole magnet obtained by magnetizing a magnetic substance to a quasi-single pole as NSN or SNS by a Mobius-wound coil and dividing the magnetic substance into three, a lot core 1 using this magnet, a plurality of colloidal cores 2 separated and mounted in the axial direction of the lot core 1 and as a quasi-single pole magnet homopolar with the lot core 1, a capacitor coil 3 as a single-pole magnetic substance homopolar with the lot core 1 Mobius-wound on the colloidal cores 2, and a capacitor 4 manufacturing a parallel resonance circuit.

Japan Patent # 6269155

(PDF)
Generation Set
9-22-1994
Shinichi SEIKE SHINICHI; Kazusumi TOMIYOSHI



Classification: - international: H02K53/00; H02K53/00; (IPC1-7): H02K53/00
Abstract --- PURPOSE: To obtain a clean generation set, which does not require power, fuel and the like from outside. CONSTITUTION: Three stages of capacitor coils, within conductors of a gold alloy are wound as Melbium windings, are provided in a toroidal core made of rare earth material. A rod-shaped single-pole magnet 2, which is magnetized as a quasi-single pole, is arranged so as to pass the centers of the toroidal cores. A resonance disk 3, wherein three gold balls 4 are equally embedded, is provided. The same exciting power coils 5 as the capacitor coils 1 are provided. A nuclear electric resonator and a resonance circuit are formed of single- pole magnet 2, the capacitor coils 1 and the resonance disk 3. The three-phase AC generated in the coils in the Moebius winding is taken out outside.

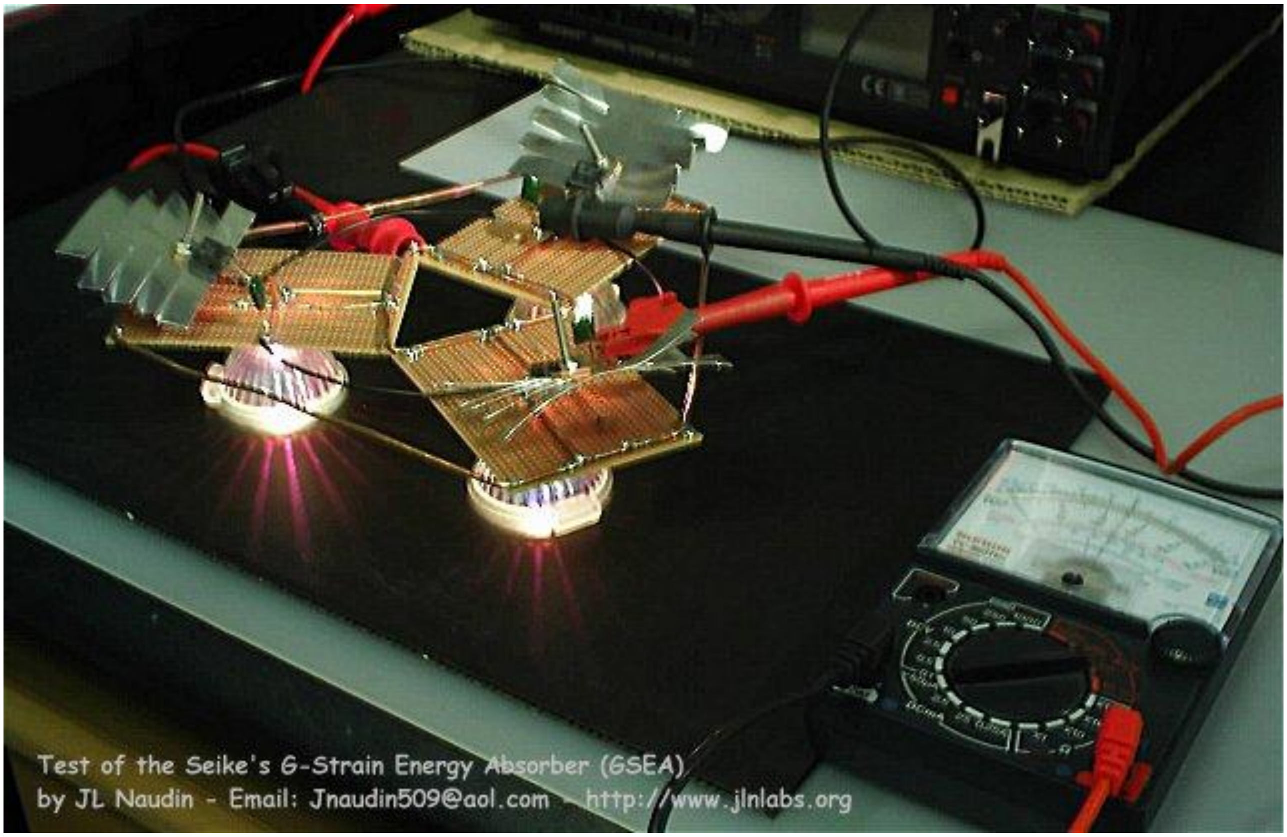
---

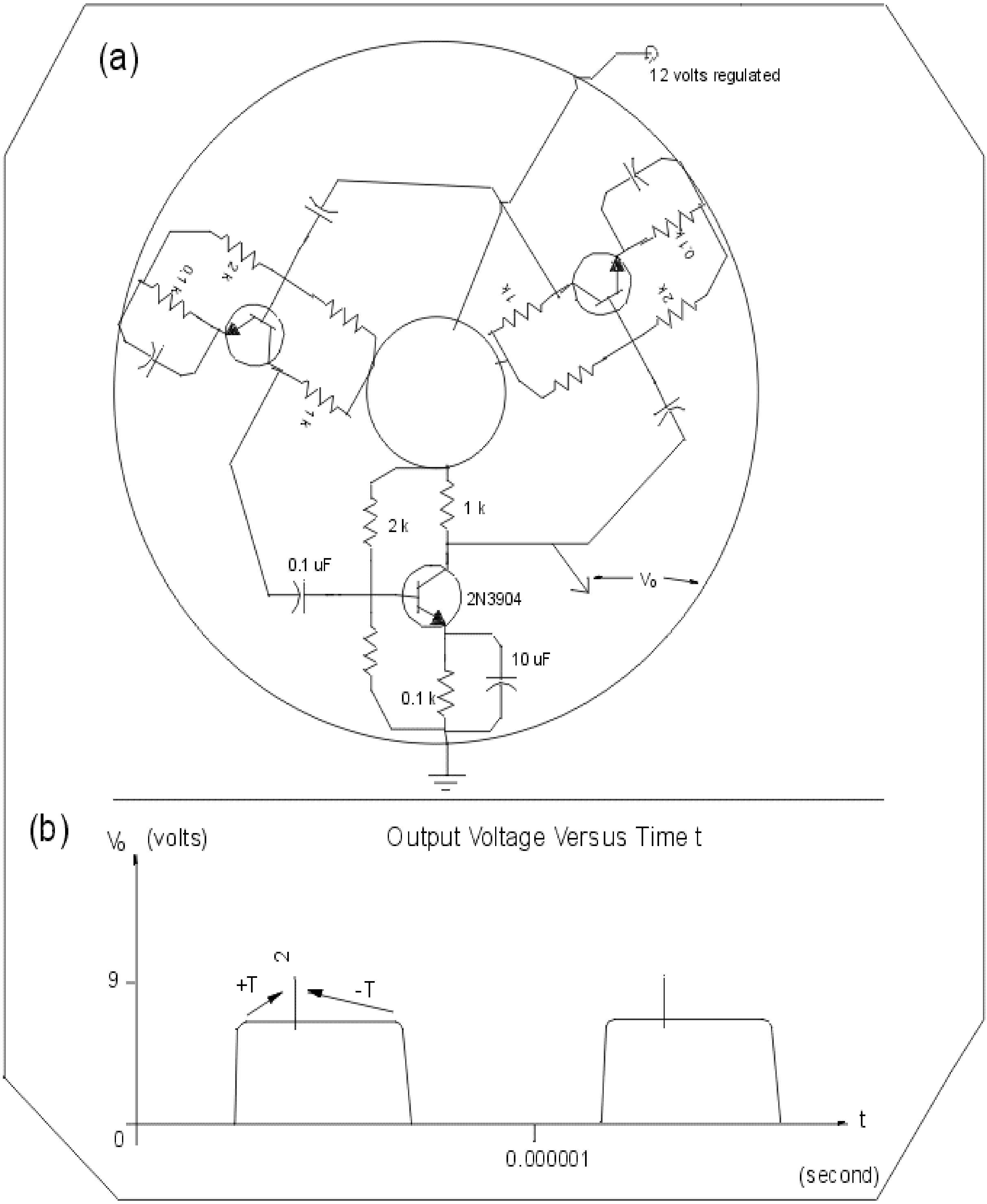
http://jnaudin.free.fr/html/gseamnu.htm
http://jnaudin.free.fr/index.htm (Home Page)

Replication of Seike's G-Strain Amplifier

by

Jean-Louis NAUDIN


Test of the Seike's G-Strain Energy Absorber (GSEA)
by JL Naudin - Email: Jnaudin509@aol.com - http://www.jlnlabs.org



Output Voltage Versus Time t

Abbreviated Report on Prof. Seiki about the use of the G-Energy

Professor Shinichi Seiki, Uwajima City, Ehime Prefecture, Japan, developed a somewhat more elaborate theory of the Lorentz-Force, incorporating the use of the "ether."

Starting with the so-called "Kramer-equation," which describes the movements of atoms in the presence of exterior electrical and magnetic fields-the basic components of the Lorentz-force-Professor Seiki conceived of the possibility of creating "negative gravitational energies" by utilizing a suitable electro-magnetic field.

Currently, in a process called NMR (Nuclear Magnetic Resonance), we only utilize the charges in spatial electron spins due to the application of magnetic fields. The substance to be examined is placed in a high frequency field, and we observe energy absorption effects peculiar to the frequencies typical of a given molecule of matter.

Seiki went one step further and introduced NER (Nuclear Electrical Resonance),which influences both the polar and the axial spin. Polar spin, he claimed, is directly related to the gravitational field.

Describing a rotating electrical AC field superimposed on a DC magnetic field, he claims that an exponential increase of "negative gravitational energies" occurs at a certain resonance frequency. This means that energy from the earth-gravitational field enters the system of the secondary artificial field created by the anti-gravitational motor. The negative G-energies cause a weakening of the earth-gravitational field,ultimately cancelling it altogether. Further depolarization then causes the vehicle to be repulsed by the larger gravitational body (earth).

It seems that the reason Prof. Seiki's NER effects have not been "officially" utilized, is that nuclear electrical resonance can only occur only at extremely high electrical voltage simultaneously with ultra-high AC frequencies.

Below this threshold, the probability of negative-G-energy conditions is extremely small. Above this critical frequency (also called - "Larmor Frequency"), the effect of this type of gravity engine is also dependant upon the electro-magnetic polarization potential of materials used.

Professor Seiki proposes ferromagnetic substances, such as ferrit and ferromagnetic materials such as barium-strontium-titanate. In his design, three spherical condensers are alternately charged and discharged by three magnetic coils. At first glance, the entire idea seems to be just another "perpetuum mobile."

However, the only energy transformed used is that of gravitational energy into mechanical and electrical and vice-versa.

Seiki calculated a power output of 3*10^9 KW for an anti-gravity engine, using one ton each of ferrit and barium-strontium-titanate for design. This is more than the total output of a Saturn rocket, but, even so, Seiki's vehicle could carry a payload of about one ton!

Professor Seiki's work does seem to be taken seriously, as attested to by the fact that DR. WERNHER VON BRAUN considered it of sufficient interest to discuss it personally with him during one of Von Braun's trips to Japan.

Excerpted from Professor Shinichi Seike's book,
"The Principles of Ultra Relativity".
NACHTRAG ZU DEN ENERGIE—KONFERENZEN IN HANNOVER UND TORONTO

The Transistorized Coil: A Novel, Clean Energy Tool

As calculated by Lev Davidovich Landau, Nobel laureate in Physics (1962) g strain energy (also known as the Landau g factor) of:

$$w = (-g^2)/(8\pi k[erg/cm^3]), \qquad (1)$$

is stored throughout the entire terrestial space, where:

$$g = 980\ cm/sec^2,$$

and k stands for Newton's g constant of:

$$k = 6{,}670 \times 10^{-8}\ dyn.\ cm^2/g.$$

With this in mind, it is known that the energy of:

$$w = -5.4 \times 10^{11}\ erg/cm^3 \qquad (2)$$

is present in our terrestial space. This energy is available and could become a clean energy source and be potentially more available than Nuclear Fusion.

It has been, however, difficult to convert g strain energy into electric power because it is in a state of negative energy. One is reminded that in Paul A. M. Dirac's Theory of Particles and Anti-Particles, there are four states of entity:

1) Occupied state of positive energy (e. g., electrons);

2) Unoccupied state of positive energy (e. g., "holes" as treated in Semiconductor Physics);

3) Occupied state of negative energy;

4) Unoccupied state of negative energy (e. g., positrons)

States 2) and 3) are in a negative energy state, while states 1) and 4) are considered to be in a positive one. From this, one knows that it is necessary to convert the g strain energy into power with "holes" (the unoccupied state of the electron). Now, in reality, g strain energy is composed of "holes", as is illustrated schematically in Figure 1.

```
┌────────────────────────────────────────────────┐
│                                                │
│              g strain energy                   │
│                                                │
│                     ooo                        │
│                   ooooooo                      │
│                  ooooooooo                     │
│                 ooooooooooo                    │
│                ooooooooooooo                   │
│                ooooooooooooo                   │
│               ooooo.....ooooo                  │
│               oo...     ...oo                  │
│      oooooooooo..          ..oooooooooo        │
│    ooooooooooo.              .ooooooooooo      │
│   ooooooooooo.                .ooooooooooo     │
│   oooooooooo.                  .oooooooooo     │
│   ooooooooo.                    .ooooooooo     │
│   ooooooo.                       .ooooooo      │
│    oooooo.                       .oooooo       │
│     oooo.                         .oooo        │
│     oooo.                         .oooo        │
│      oo.                           .oo         │
│      oo.           Earth           .oo         │
│       o.                           .o          │
│        o.                         .o           │
│        o.                         .o           │
│       ooo.                       .ooo          │
│      oooo.                       .oooo         │
│     oooooo.                     .oooooo        │
│     ooooooo.                   .ooooooo        │
│    ooooooooo.                 .ooooooooo       │
│    oooooooooo.               .oooooooooo       │
│   ooooooooooooo..          ..ooooooooooooo     │
│   oooooooooooooo...      ...oooooooooooooo     │
│  oooooooooooooooooo.....oooooooooooooooooo     │
│  ooooooooooooooooooooooooooooooooooooooooo     │
│   ooooooooooooo             ooooooooooooo      │
│   ooooooooo                     ooooooooo      │
│     oooo                           oooo        │
│                                                │
│                                                │
│                    holes                       │
│                                                │
└────────────────────────────────────────────────┘
```

Figure 1

The g Strain energy absorber

A closed amplifier (transistorized coil) can be designed to absorb the gstrain energy. As is known, the p type of semi—conductor carries "holes"(unoccupied state of electrons). In order to absorb g strain energy, such material is required. Though a semi—conductor coil is desirable, it is difficult to obtain. Hence, a transistorized coil is selected since either silicon or germanium may be used as transistors.

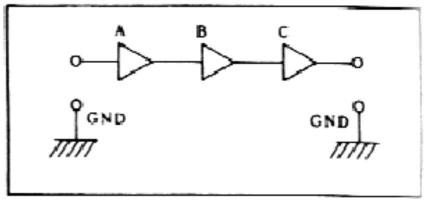


Figure 2

As is shown in Figure 2, an ordinary amplifier is open. The signal is amplified at the A stage, amplified again at the B stage and finally at the C stage, and then terminates. At this time, it is appropriate to design a closed amplifier as shown in Figure 3, in which the signal is amplified by the stage A again, after it is done with A, B and C. Such amplification can continue, giving the device aname that is chosen as "Endless Amplifier", and which demonstrates some interesting characteristics. One characteristic is displayed with the circuit diagram in Figure 4, where three 2SC521 A's form the closed amplifier. Detection of oscillation shows that the frequency of this circuit's system decreases with time, as indicated in Table 1.

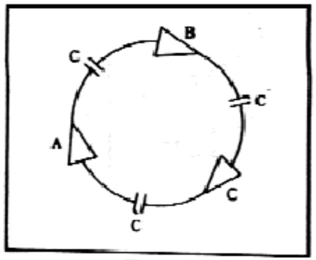


Figure 3

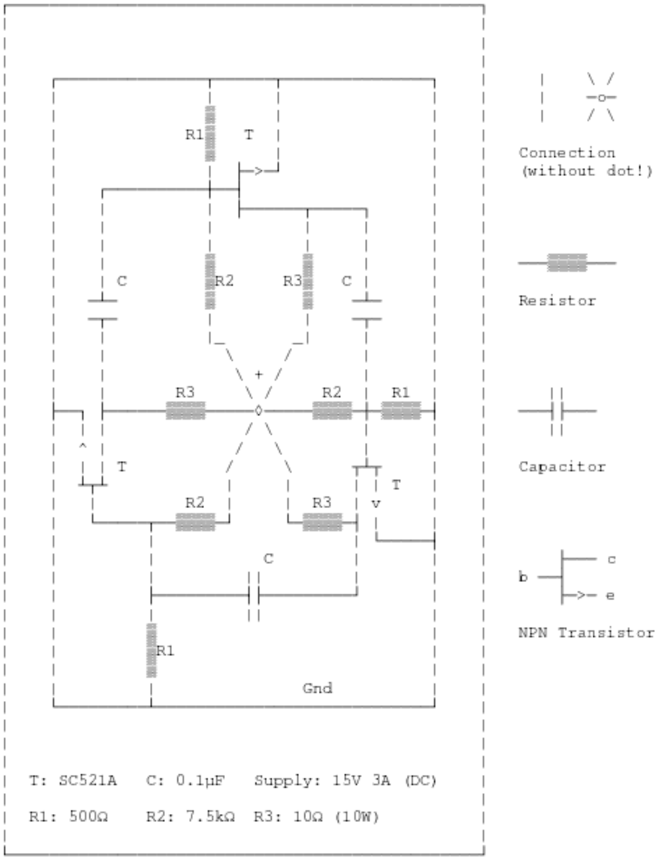


Figure 4

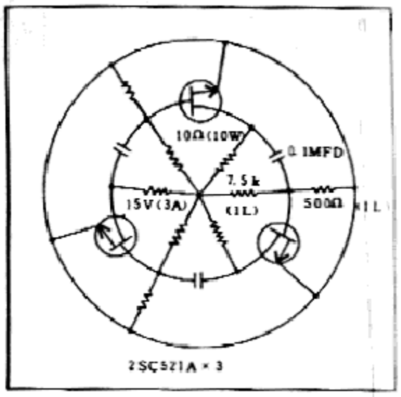
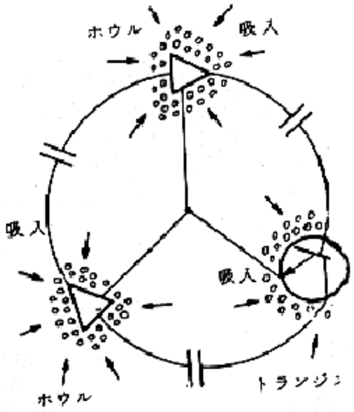


Figure 4



Often it is discused in quantum physics that the energy of quanta is proportional to angular frequency such that:

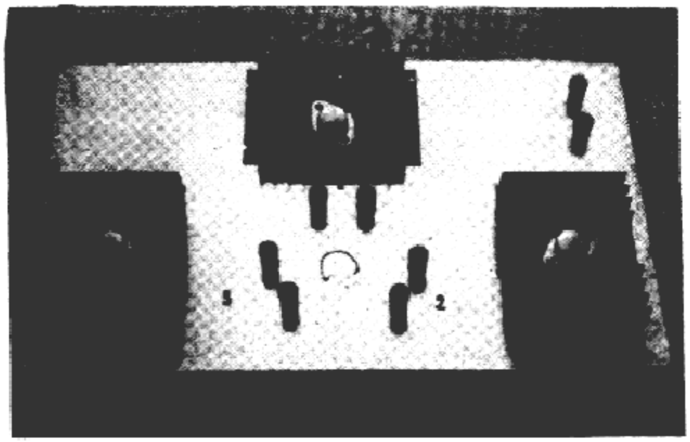
$$W = (h/2\pi)\,\omega \qquad (3)$$

$$W = h\,f \qquad (4)$$

where $h/2\pi$, h and ω stand for Planck's constant, Planck's one and the angular frequency of:

$$\omega = 2\pi f \qquad (5)$$

respectively. This result maintains that the energy of the system decreases with time by absorbing negative energy of g with transistors.
An example of the transistorized coil is shown on the following Photo (2SC521A x3).



The experimental specifications are:

- Collector potential (B potential): 5 V DC (stabilized)
- Cycle counter FC756 by Trio Limited
- Impedance Matching: 50Ω . Attenuation: 1/10
- 2SC521A = Silicon NPN Triple Diffused MESA Transistors
- Date: Jannuary 26, 1981.

Time	Frequency	Time	Frequency
13:51	1.2767 MHz	14:01	1.2666 MHz
52	1.2710	02	1.2661
53	1.2707	03	1.2658
54	1.2701	04	1.2655
55	1.2695	05	1.2651
56	1.2689	06	1.2648
57	1.2684	07	1.2645
58	1.2680	08	1.2642
59	1.2678	09	1.2639
14:00	1.2670	10	1.2636

Table 1

Over–efficiency of the transistorized coil

The oscillation potential exceeds theortical values as the input potential increases.

The transistorized coil is, at the same time, a three–phase oscillator, where stages A, B and C become the 3 terminals for the three–phase current, as in the following Figure 5:

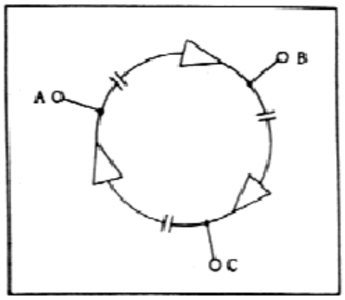


Figure 5

If one feeds in DC voltage between the lines, AC potential must be DC/2 to the single phase, while it in turn must be (DC/2)x√3 between the phases (for example, between A and B) to the three–phase current.

In the following Table 2, the theoretical value is compared with actual output, with the resultant percentage efficiency:

IN (DC volt)	5	10	15
(DC/2) x √3 (volt)	4.33	8.66	13.0
OUT (volt)	3.3	7.2	21.0
Efficiency (%)	76	83	162

Table 2

Thus, low input (DC) leads to lower efficiency. But the percentage efficency exceeds 100% when one feeds in, for example, a 15 volt DC, which evidently shows that the "holes" have managed to flow into the transistorized coil (or,the "Endless Amplifier").

Some features of the novel energy

This energy is quite different from ordinary electrical power because it is negative. It will have a low temperature, since the thermal energy of negative energy can be computed to be:

$$kT < 0,$$

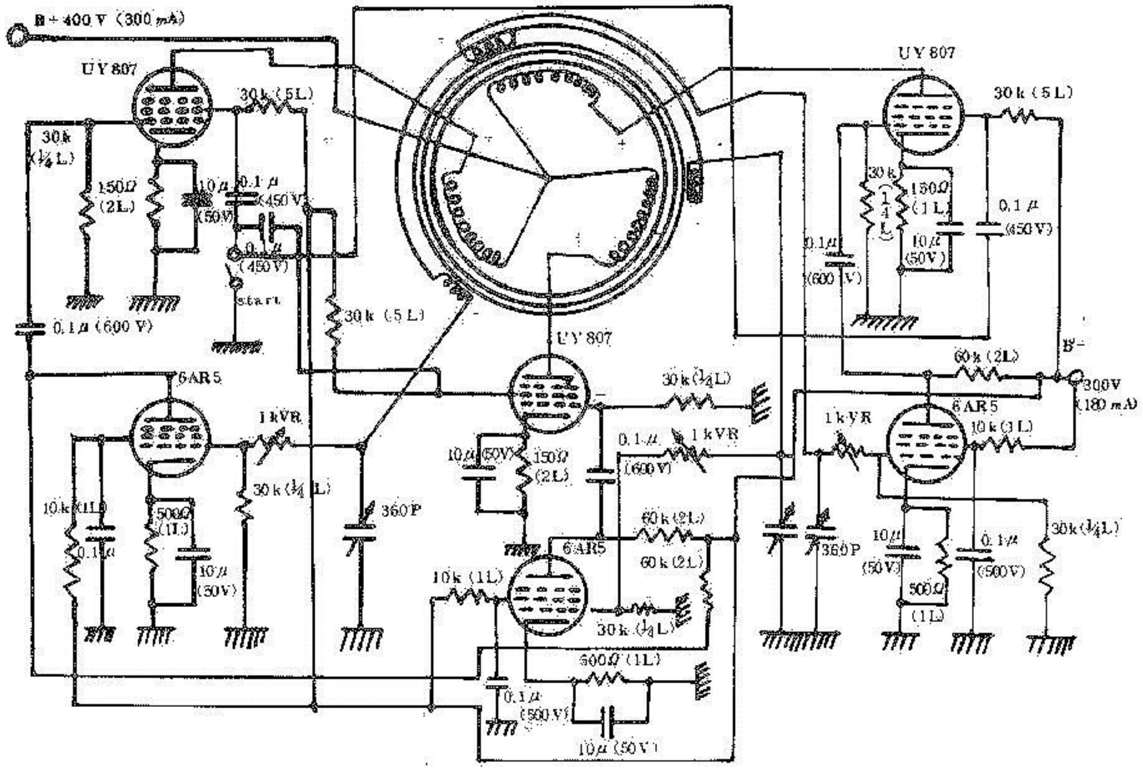
where k and T denote the Boltzmann constant and the Kelvin temperature,respectively.

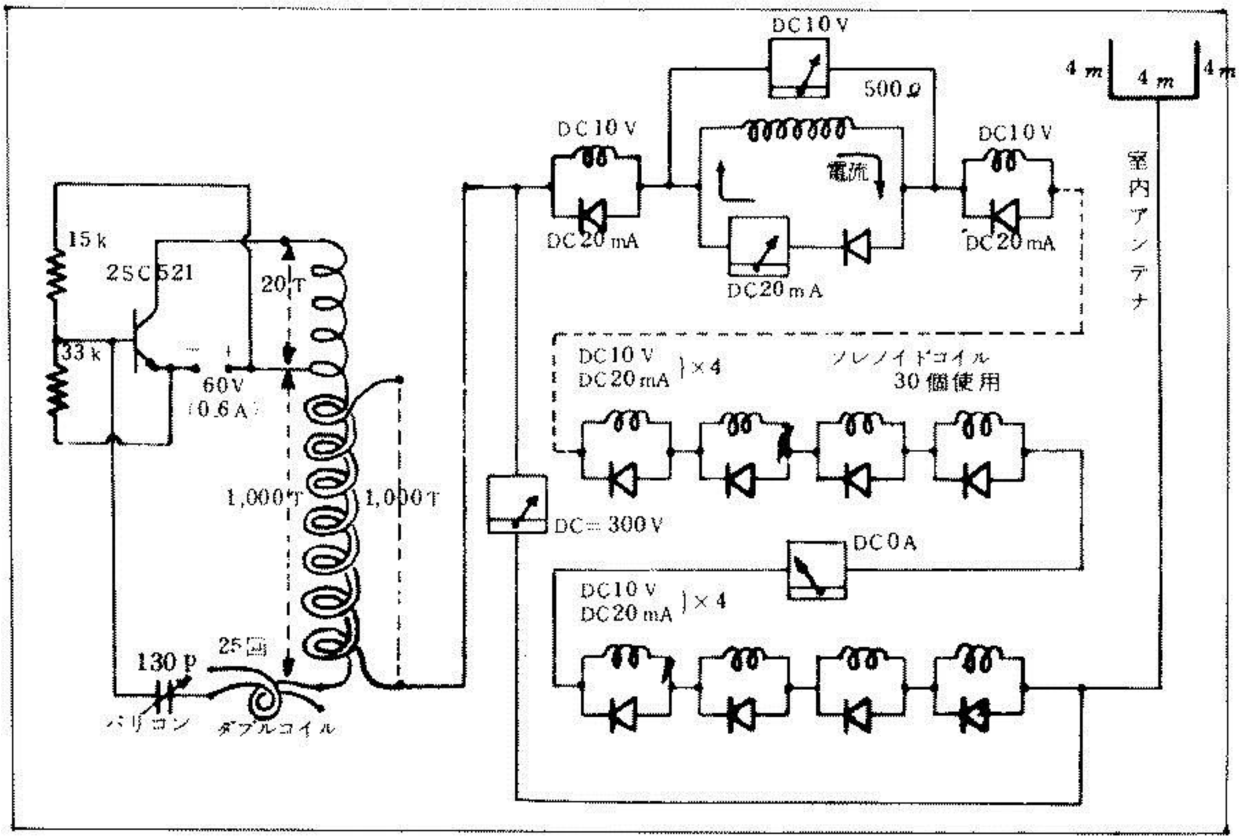
The transistorized coil would scarcely emit heat when a large "hole" current flows; it is quite clean. Yet, the magnetic field can be generated, since a "hole" owns a charge. Physicists have intuitively felt that g energy would not be easily melt, since it is frozen onto the background space. This has, indeed been true as one uses an ordinary copper coil.

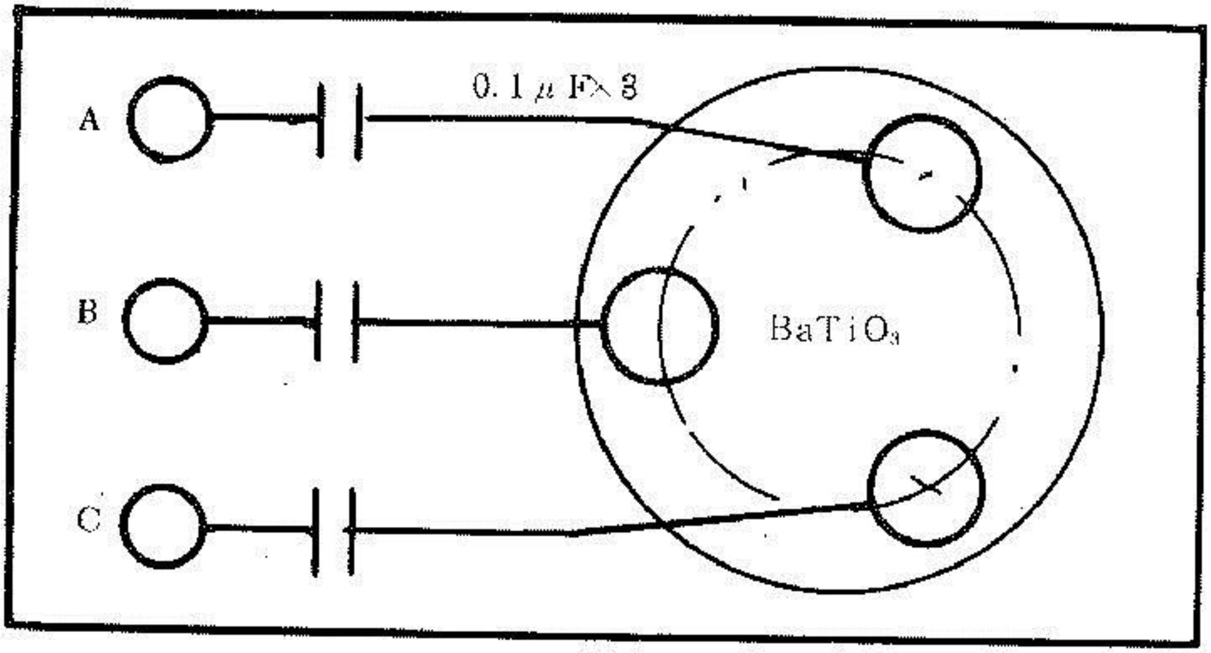
However, the use of a transistorized coil makes possible the acquisition of that same energy. G strain energy is limitless and free. In this sense, our method is quite revolutionary. With the transistorized coil, one can obtain an endless supply of electric power, where and when it is required, beyond the limits of sources of supply and transportation requirements. Only conversion apparati are required. Owing to the pair production concept sof Paul Dirac, matter and particles can literally be boren out space itself!

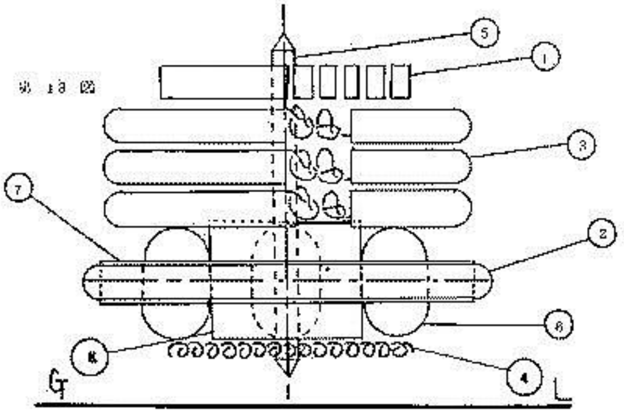
This space is, as it were, the mother of entity. Thus the "space age" follows the atomic age. The power of g strain energy is more advanced than nuclear power as it is a more advanced philosophy in quantum physics and relativistics.

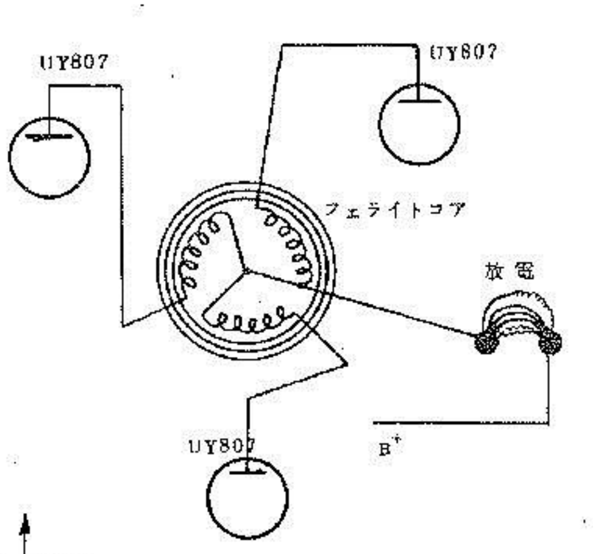
(Shinichi Seike)More information is available in a book by Prof. Shinichi Seike, "The Principles of Ultra Relativity", available from the G Research Laboratory, P.O. BOX 33, Uwajima Post Office, Ehime (798), Japan.

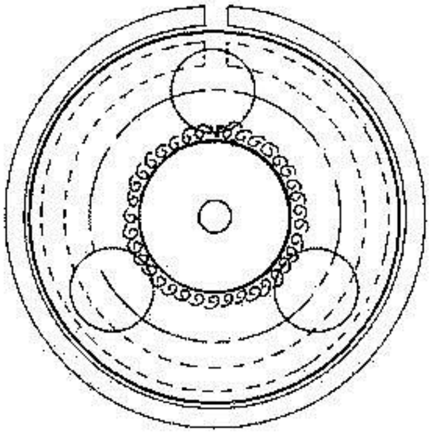


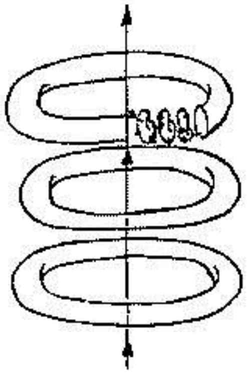

DC10V
500Ω
4m
4m
4m
DC10V
DC10V
電流
DC20mA
DC20mA
DC20mA
室内アンテナ
15k
2SC521
20T
33k
− +
60V
(0.6A)
DC10V
DC20mA
}×4
ソレノイドコイル
30個使用
1,000T
1,000T
DC=300V
DC0A
DC10V
DC20mA
}×4
130p
25回
バリコン
ダブルコイル

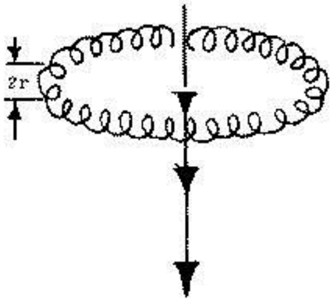

A
B
C
0.1μF×3
BaTiO3











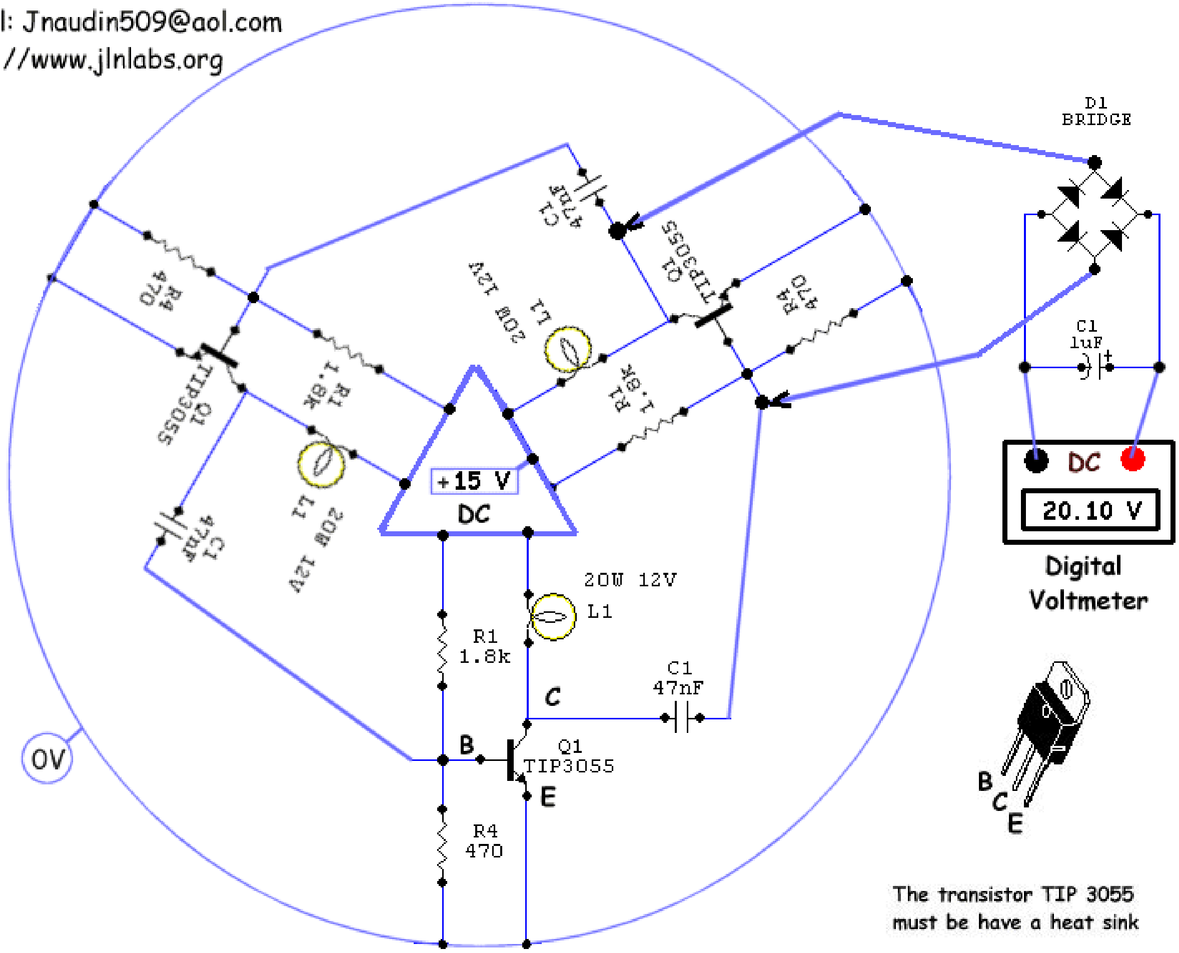
See also:

http://jnaudin.free.fr/seike/gseav3.htm
http://jnaudin.free.fr/html/gseadiag.htm
http://jnaudin.free.fr/html/gsea21.htm

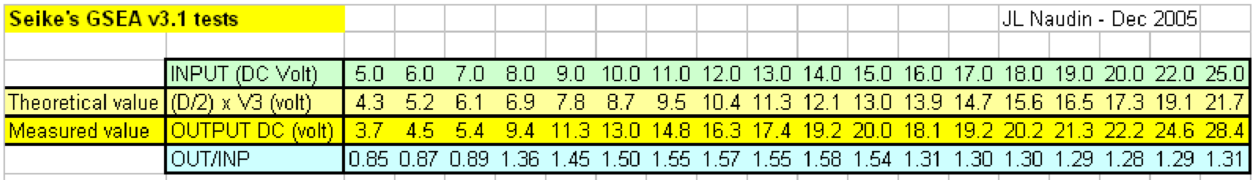
The Seike's G-Strain Energy Absorber (GSEA) v3.1

Email: Jnaudin509@aol.com

http://www.jlnlabs.org



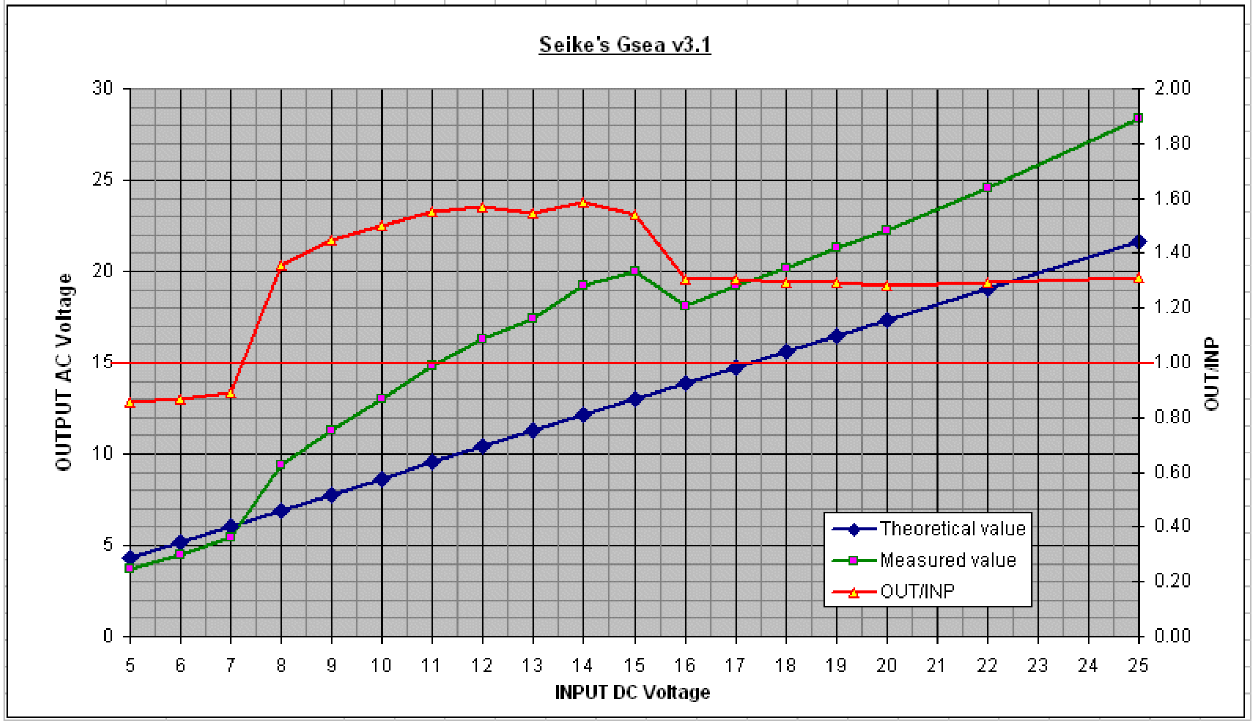
The transistor TIP 3055 must be have a heat sink



Seike's GSEA v3.1 tests

JL Naudin - Dec 2005

	INPUT (DC Volt)	5.0	6.0	7.0	8.0	9.0	10.0	11.0	12.0	13.0	14.0	15.0	16.0	17.0	18.0	19.0	20.0	22.0	25.0
Theoretical value	(D/2) x V3 (volt)	4.3	5.2	6.1	6.9	7.8	8.7	9.5	10.4	11.3	12.1	13.0	13.9	14.7	15.6	16.5	17.3	19.1	21.7
Measured value	OUTPUT DC (volt)	3.7	4.5	5.4	9.4	11.3	13.0	14.8	16.3	17.4	19.2	20.0	18.1	19.2	20.2	21.3	22.2	24.6	28.4
	OUT/INP	0.85	0.87	0.89	1.36	1.45	1.50	1.55	1.57	1.55	1.58	1.54	1.31	1.30	1.30	1.29	1.28	1.29	1.31



---

http://www.spots.ab.ca/~belfroy/space-timeinformation/tachyonDetector.html

Round Amplifer: Tachyon Detector

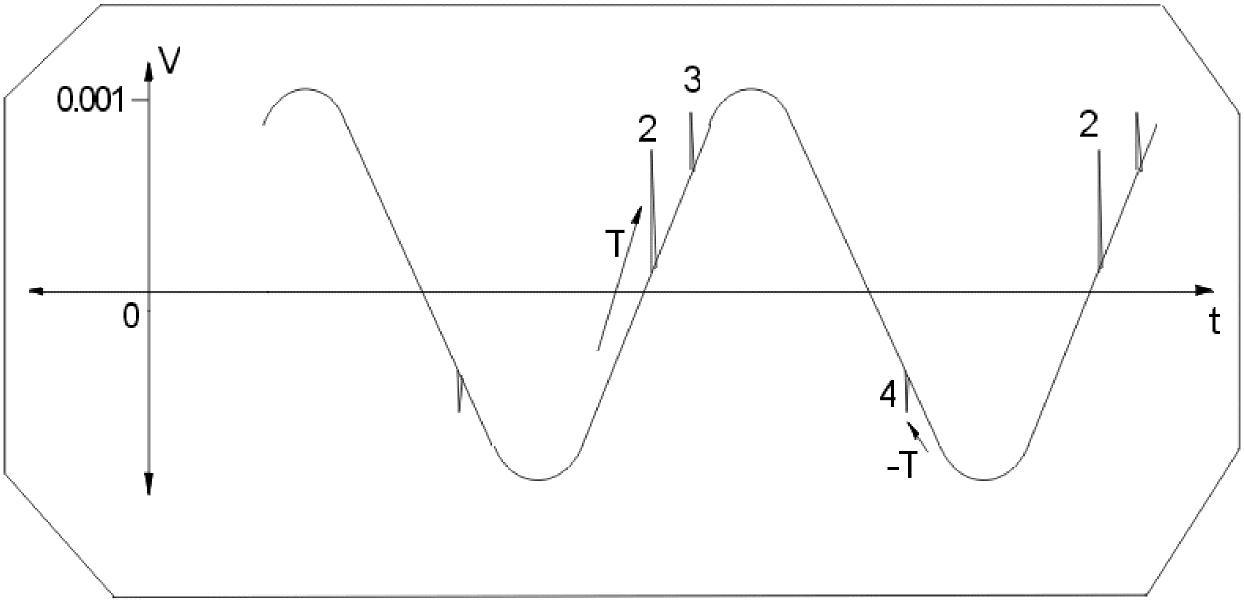
by

Len Belfroy

A tachyon particle if it exists is a particle that can travel faster than the speed of light. The model of the tachyon a hypothetical particle was invented by Gerald Feinberg. It may have a mass and size smaller than that of a light photon. Since tachyons can travel faster than light speed c, it may be able to travel through time. Tachyons or this type of tachyon may be able to be send through time to the recent past or future time. The volume of the tachyon may be smaller that the volume of a light photon if a photon has a volume. A light photon is a particle of light. Tachyons may be produced pr polarized in semiconductors such as a transistor. Positive or negative electrical potentials in semiconductors may contain positively or negatively electrically charged tachyons.

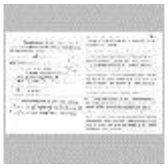
The negative electric charge may make negatively charged tachyons or negative energy -T more dominant than positively charged tachyons in the electric field. Positively charged tachyons +T may be moving forward in time, while negatively charged tachyons -T may travel backwards in time. Tachyons may be small waves through the fourth dimension a little like waves of sound in air. If electrons are in a strong negatively charge tachyon field -T, the electron may travel a few milliseconds backwards in time. Tachyons may be able to effect the electric charge inside semiconductors and show as narrow voltage spikes.

There may be an electrical experiment for producing tachyons. Figure 1(a) shows a copy of a round amplifier tachyon detector which was invented by Professor Shinichi Seike of Japan. Electric charges in a semiconductor may be sending tachyons through small regions of local space-time a little like puffs of air making waves over water or like radio waves in three dimensional space-time. Tachyon T and -T signal amplitudes are weaker than radio waves in the same semiconductor. The round amplifier consists of three identical transistor stages. Some of the electric output power of the last amplifier is send to the input of the first amplifier stage. Electrical connectionslines between transistors are short. This produces a round amplifier or electronic oscillator circuit. Figure 1(b) graph shows an approximate copy or sketch of the output voltage Vo versus time t from the round amplifier. It is a copy of the signal voltage Vo read or displayed by an electronic oscilloscope.



Sinichi SEIKE Lecture

(Click Thumbnail to open in new window)

(1) (2) (3) (4)  (5) (6) (7)

Excerpts:

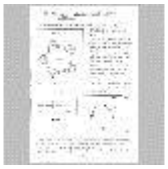
" *The Principles of Ultra Relativity* "

by

Shinichi SEIKE

(Click Thumbnail to open in new window)

(1) **(2)** **(3)** **(4)** **(5)**

(6) **(7)** **(8)**  **(9)** **(Figures)**

Dr. Albert SEROGODSKY

Heat Engine

***Planetary Association for Clean Energy* 6(4): 3**

A Russian semi-governmental, semi-private company, Protek (after: "protection of innovative technologies") is promoting, among other systems, a free-energy device designed by Dr. Albert Victorovich Serogodsky of the Moscow Central Aerological Laboratory. The device was recently presented at a St. Petersburg conference, "Practical & Theoretical Problems of Non-Traditional Energetics", organized by Dr. Anatoly P. Smirnov. It works with a mixture of a gas and a vapor (steam) somewhat as another thermal device invented by the Austrian Rudolf Doczekai (See Vol. 6, 2-4). It reportedly "transforms" heat taken from a heater into mechanical energy without requiring a cooler --- so should theoretically work off environmentally available heat. It produces 18 kw mechanical energy. The device has been demonstrated to the German Bundestag, ex-Green Party deputy Daniels, and to a Swedish corporation which has negotiated a blackout against further non-Russian exposure of the device in action.

Details: Vladimir I. Rybak, ELSIB, Lobacheka St. 2-2, Moscow 107410, Russia; (95) 264-6334; fax (95) 532-9743.

German Patent (DE) # 4,244,016

Closed-Cycle Heat Engine with Moving Chamber-Wall

7-07-1994

Prof. Albert V. Serogodsky

Applicant: ECENAL SCIENT FIRM LTD (RU)
Classification: - international: F01K25/06; F01K25/00; (IPC1-7): F01K25/06 - european: F01K25/06
Application number: DE19924244016 19921224
Priority number(s): DE19924244016 19921224

Abstract ~ The working medium is a two ingredient mixture, the first ingredient having a critical temperature below boiler temperature, while that of the second ingredient is above it. The mixture combines at boiler temperature where retrograde condensation occurs. The lighter volatile or gaseous ingredient is soluble in the heavier volatile one in the fluid phase. The specific volume may be abscissa above the ratio of the amount of the lighter ingredient to the total amount of the mixture.

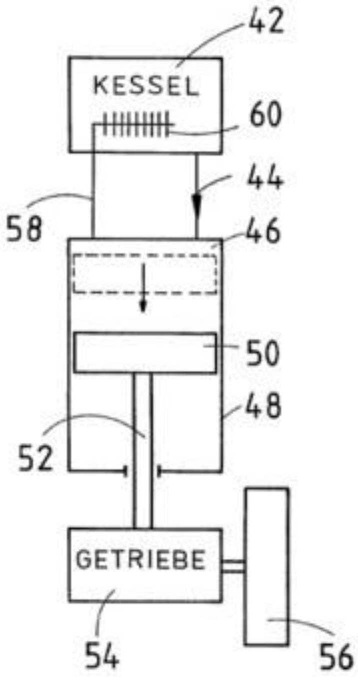


Fig. 5

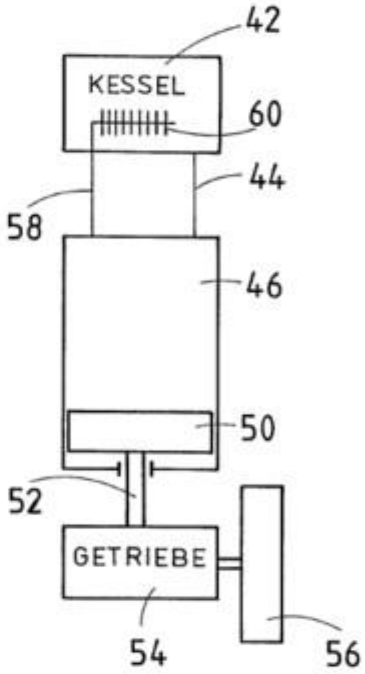


Fig. 6

German Patent (DE) # 4,244,016

(PDF)

Kenneth SHOULDERS

Electrum Validum

Ken Shoulders' Electrum Validum (EV)

by

Robert A. Nelson

Kenneth R. Shoulders has received five US Patents for his discovery and development High Density Charge Cluster (HDCC) technology. Shoulders describes the HDCC entity as "a relatively discrete, self-contained, negatively charged, high density state of matter... [a bundle of electrons that] appears to be produced by the application of a high electrical field between a cathode and an anode." He has given it the name "Electrum Validum" (EV), meaning "strong electron", from the Greek "elektron" (electronic charge) and the Latin "valere" (to be strong, having power to unite).

Ken Shoulders suggests that EVs travel in an electromagnetic container, a potential well with a depth of about 2 kv. The electromagnetic field attracts a few ions, and they give the EV its mass. In a conventional electron beam, the containment is due to an external electrostatic or magnetic field, since electrons repel each other. Though an EV is a discrete bundle of electrons, it prefers to communicate with other objects, and disintegrates if it has nothing to do. An EV also can be conceived of as an atom without a nucleus, or as a spherical monopole oscillator. EVs exhibit soliton behavior with number densities equal to Avagadro's number. These non-neutral electron plasmoids contain various levels of binding energy whichexceed that of atoms, and allows for new types of reactions with matter.

An EV is relatively small (about 0.1 micrometer) and has a high (-) electron charge (typically about 10^{11} electrons, minimally 10^{8} electrons). There is an upper limit of 1 (+) ion per 100,000 electrons. EVs attain a velocity on the order of one-tenth the speed of light under applied fields. Though the EV has a preferred quantum-level structure of approximately 1 micrometer diameter, EVs in the range of 1/10 micrometer diameter have been observed.

The EV probably is a spheroid, but it may be toroidal and possess a fine structure. Lone EVs are rarely observed. They tend to form closed "chains" -- quasi-stable, ring-like structures as large as 20 micrometers in diameter **(Fig. 1a, b)**. Although they are not vortexes or filaments, such rings can form chains of rings that are free to rotate and twist around each other. The spacing of EV beads in a chain is approximately equal to the diameter of the individual beads. EV chains appear to be tangled when they are launched from the cathode, but they automatically rearrange themselves into rings. Shoulders does "not mean to imply that there is an actual untwisting occurring, but rather that the nodes of a complex pattern are somehow moving." The EV chains hit a surface without rotation, translation or skewing.

EVs can be found in gross electrical discharges (lightning, sparks, etc.), but they are not practical in that form. Shoulders says, "The EV is formed and propagates to the anode whenever the DC or pulse voltage rises to the point at which field emission begins a runaway switching process aided by metallic vapor from the cathode emission site. This process happens 100% of the time." Shoulders' patents describe devices for propagating, isolating, selecting and manipulating EVs so that thermal energy, electrical power, and other work can be extracted from them. Theirpath can be switched or varied in length for use with a camera, oscilloscope, or panel display. Shoulders' EV devices have properties superior to any other technology.

Another patent is pending for the **remediation of nuclear waste by EVs**. This is a priceless application of this technology; it will be the basis of a great new industry of inestimable value to humanity and the planet.

An EV can be generated at the tip of a sharply pointed electrode when a large negative charge (2-10 kv) is applied. A dielectric plate (preferably fused quartz or alumina, typically 0.0254 cm thick) intervenes between the emitter cathode and the collector anode**.(Figs. 2, 3)**

The EV makes a streak of light as it travels across the surface of the dielectric, and imparts a localized surface charge. Unless this charge is dispersed, it will cause the next EV to follow another path. A witness plate of metal foil may be positioned to intercept the EVs, and will sustain visible damage from their impact. The foil thus serves to detect and locate the entities even if they are invisible ("black EVs").

The anode current value can vary from 1 to 6 amperes. Shoulders has found that a 1-ampere level of anode current is produced by a chain of 3-5 EV beads whose overall diameter is about 3 micrometers. A sufficiently low load resistor must be used so that the voltage will not rise and deflect the EV. For a 2 kv pulse, a rise of 500 volts at the anode is a reasonable maximum. The rise rate is very high, and a wide-band oscilloscope is required to measure it. Otherwise, a capacitively coupled load must be provided for the EV. There is an upper EV size or current limit that can be collected for any particular wire size.

The EV generator is typically about 10 mm. long, but the generation and manipulation of EVs can be accomplished with structures as small as 10 micrometers. The materials used in its construction need be very stable and durable to withstand the high energy of EVs. The generator also can be tubular, and it can be designed to operate in a vacuum or in a gaseous atmosphere. In a high vacuum system, the space between the cathode and anode should be less than 1 mm for a 2 kv charge. In a gaseous atmosphere of a few torrs pressure, the distance between the electrodes can extend to over 60 cm if a ground plane is positioned next to or around the tube.

The negative pulse can vary from a few nanoseconds to continuous DC without unduly influencing the production of EVs. A series resistor is placed between the pulse voltage source and the EV generator, and a scope is used to monitor the voltage. The current is calculated from the resistor value and the voltage drop.Long pulse conditions in a gas atmosphere require the use of an input resistor to prevent a sustained glow discharge within the tube. The discharge is easily quenched under low pressure or vacuum conditions. Using a pulse period of 0.1 microsecond, for example, a resistor value of 500 to 1500 ohms is practical for operation in either a vacuum or gaseous regime.

The formation of an EV is a very fast event which cannot be observed clearly on a conventional oscilloscope; all that shows is a disturbance and a small step for a few nanoseconds. Ken Shoulders has developed a "picoscope" which performs as anoscilloscope for waveform measurements in real time to 10^{-13} seconds.

The cathode may be constructed of copper or a wide variety of other materials (Ag, Ni, Al, etc.). It must have a sharp tip or edge so that a very high field can concentrate there. However, the dissipation of energy by EV production destroys the electrode tip, which must be regenerated.

This can be accomplished with a liquid conductor such as mercury. Non-metal conductors also may be used instead (i.e., glycerin doped with potassium iodide, or nitroglycerin/nitric acid). The pulse rate of the power applied to the cathode must be low enough to allow migration of the liquid conductor.

The cathode also can be embedded within a guide groove in the dielectric base. Such a cathode may be made of metallic paste fired into an alumina base. Molybdenum is preferable because silver or copper are too soluble in mercury to be useful in such a film circuit. A surface embedded cathode enables the propagation of EVs with only 500 volts and a much higher pulse rate.

EVs may be launched across a gap between the cathode and dielectric guide if the end of the cathode forms an acute angle. In a low-pressure atmosphere (i.e, Hg or Xe at 10^{-2} torr), an EV launcher can be operated with a cathode pulse as low as 200 volts. If the dimensions of the components are reduced to a minimum (i.e., 1 micrometer thickness of the dielectric base), an EV can be launched with less than 100 volts difference between the cathode and anode. **(Fig. 4)**

The operation of a wetted cathode produces vaporous products that form a (+) ion cloud and enhance the production of EVs. However, these vapors are considered as contaminants that must be stripped away from the EVs. This is done by a tunnel dielectric separator which contain the contaminants while the EVs exit toward the collector anode. The separator is provided with a counterelectrode located on the exterior of the tunnel and maintained at a positive potential relative to the cathode. The anode is positively charged relative to the counterelectrode. Typical voltage values are in the range of 4 kv on the cathode, 2 kv on the counter-electrode, and 0 on the anode. If the separator tunnel is constructed of semiconductor material, the tunnel itself can serve as a counter-electrode.

EVs tend to follow fine structural details such as surface scratches and imperfections. Thus, EVs can be guided by providing a smooth groove or an intersection of two dielectric surfaces or planes at an angle less than 180^{o}. The groove needs be only a few micrometers wide and deep. The guiding effect may be enhanced by a tubular dielectric guide provided with an exterior counterelectrode or ground plane. The guide channel can be as small as 20 micrometers in diameter without restricting the EVs. If an EV is larger than the channel, it will bore out a wider pathway for itself. Once this is done, no further damage will be done by subsequent EVs. As EVs travel across a dielectric surface, they seem to synchronize their paths in a 180^{o} out-of-phase relationship.

An EV can be guided across the surface of a dielectric if a positively charged ground plane or counterelectrode is positioned on the opposite side of the dielectric. The path of the EV also can be influenced by RC (Resistance/Capacitance) and LC (Induction/Capacitance) guides.

A gaseous environment can be used to enhance the guidance of EVs. Mercury and xenon work particularly well. In a low pressure atmosphere (typically 10^{-3} to 10^{-2} torr), the EV chain rises slightly from the dielectric surface and no longer interacts disruptively with it. The efficiency of transmission is increased accordingly, and the EVs can travel further between electrodes. Surface charge effects dissipate after an EV is propagated in a gaseous environment. If the unit is pulsed without any gas in the channel and with the anode at an excessive distance for the applied voltage, there is no EV formation. This condition is called "flaring". **(Fig. 5)**

At higher atmospheres, the EVs lift further from the dielectric surface and are cushioned from it by the gas guide. The groove guide and counterelectrode create a wedge-shaped gas pressure gradient which helps guide the EVs. In addition, the interior of the groove can be given a coating of resistor material to provide surface charge suppression.

When an EV moves through an atmosphere without RC guidance, it is accompanied by a visible streamer. A narrow beam of light appears to precede the streamer, possibly due to ionization of gas by the streamer. This forward light beam can be deflected by objects, and the EV and its streamer will follow it. This property makes possible the use of optical mirror guides for EVs. The mirrors should be constructed of material with a high dielectric constant and good reflectivity in the ultraviolet region. They need be only a few micrometers on a side.

When an EV approaches any circuit element, it depresses the potential of that element, which then becomes less attractive to the EV. Inductive elements are very susceptible to this effect and can be used to provide an LC guide for EVs. LC guides can be made in a variety of shapes, such as laminar planar designs or quadripoles that operate without the need of producing image forces. The poles should be quarter wave structures at the approach frequency of the EV; this is determined by the speed of the EV and its distance from the pole elements. They should be at least 20 micrometers apart and enclosed with conductive shields. **(Fig. 6)**

If an EV crosses a rough surface, it loses electrons which produce a surface charge that retards subsequent EVs. The surface charge can be suppressed in several ways. The dielectric base can be coated with alumina doped with chromium, tungsten or molybdenum to provide bulk conductivity to the substrate. The resistance must not be less than 200 ohms per square inch. The effect can be enhanced by decreasing the thickness of the substrate. The surface charge also can be removed by photoconductive processes if the dielectric is composed of diamond carbon doped with graphite. Another method is bombardment-induced conductivity, activated by the high-speed electrons from EVs.

Beads of EVs can be isolated from their chains for use in a process or device. Approximately 5 EV chains, each containing 1-12 beads, can be extracted from a total charge by a selector device provided with an extractor electrode that is positively charged with about 2 kv. A series of EV separators permits extraction of EVs of a specific binding energy from a multitude of chains with a wide range of binding energies. **(Figs. 7-9)**

A large burst of EVs can be divided by a splitter apparatus into many closely timed or synchronized sub-events. An EV splitter is constructed by interrupting a guide device with narrow secondary channels which intersect the main guide channel at positions where the EVs propagate. A single EV can be expected to turn into a side channel in each event, but the crowding effect of multiple EVs prevents the total group from diverting into a splitter. Multiple EVs generated by a single pulse may be split up to produce EV arrival signals at two or more locations, either simultaneously or with variable time delays. The guide components may include turns which selectively change the direction of EV propagation.

The direction of EV travel also can be influenced by transverse electric fields. The extent of deflection depends on the size of the deflecting field and its time period.. The deflecting field can be turned on/off or varied in strength to provide selective deflection. The deflection switch must not be near any guide channel that would interfere with transverse deflection of EVs. Degenerative or regenerative voltage feedback from the passing EVs can be used to communicate with a deflection switch by a push-pull device or filter. The deflection voltage can be as low as a few tens of volts. Deflection switching can be used to design multi-electrode sources (triodes, tetrodes, etc.). In general, techniques used in the operation of vacuum tubes can be applied to EV devices.

The use of field-forming structures such as deflection electrodes make possible the construction of an EV oscilloscope with a phosphor screen, optical microscope, or electron (video) camera. Accordingly, single event waveforms in the 0.1 picosecond range can be observed with a "picoscope" embedded in the EV generator. **(Fig. 10)**

EVs also can be generated in "electrodeless" devices which use radio frequency energy to stimulate a gas (preferably xenon) at 0.1 atmosphere pressure. External metallic electrodes are excited with approximately 3 kv which is transmitted through a tubular or planar dielectric envelope to a formation chamber which acts as a "virtual cathode". A counterelectrode ground plane cannot completely circumscribe such an envelope, because it would prevent the electromagnetic radiation signal from propagating out of the tube. A wire helix is used, terminating in an impedance-matched load. **(Fig. 11)**

For example, if a 30 cm helix with a delay of approximately 16 nanoseconds at 200 ohms impedance is wrapped around a tube with an outside diameter of 3 mm (1 mm. i.d., 10^{-2} Xe atmosphere), an EV can be launched with a 1 kv source at a rate of 100 pulses/second through a 1500 ohm input resistor, with an anode voltage of zero and a target load of 50 ohms to achieve an output voltage of -2 kv on a 200 ohm delay line and an output voltage of -60 volts at the target. The waveform generated in the helix is a function of the gas pressure. Using these parameters, a sharp negative pulse (16 ns long) was produced, followed by a flat pulse that was linearly related to the gas pressure. At minimal gas pressure, the flat pulse can be eliminated.

The propagation of EVs through a gas atmosphere produces very thin, bright ion streamers in the gas or along the wall of the envelope. In an electrodeless device, other EVs may follow along the same sheath of an ion streamer formed by a preceding EV. The thickness of the ion sheath increases as multiple EVs propagate along the same streamer. If the gas pressure is very low, EVs will propagate without the formation of a visible streamer. Such are known as "black" EVs.

The EVs generated within an electrodeless envelope can be used in a traveling wave tube. Such devices provides good coupling with a conventional electrical circuit and can exchange energy with it. Electromagnetic radiation from microwaves to visible light frequencies can be generated by EV pulses and coupled to an electrical circuit by adjusting the parameters of the transmission line and the EV generation energy. **(Fig. 12)**

The generation of EVs requires the rapid concentration of a very high, uncompensated electronic charge in a small volume. The previously described field emission processes produce metal vapors from the cathode by thermal evaporation and ionic bombardment. Pure field emission generation of EVs can be accomplished with fast switching in a high vacuum environment. The emission process must be switched on/off before the emitter overheats and evaporates; that is, faster than the thermal time constant of the cathode (typically less than 1 picosecond). The field emitter has critical limiting size of approximately 1 micrometer lateral dimension. Larger cathodes suffer undue thermal strain, whereas "below the one micrometer size range, the field emitter has the advantage of large cooling effects provided by small elements having a naturally high surface-to-volume ratio."

The emitter can have a positive bias if it is over 2 kv; the electrodes are spaced about 1 mm apart. The extractor electrode must be coated with a resistor material (approximately 10^{-2} to 10^{-6} ohms).
Ken Shoulders' has also built a "picopulser" to control the generation of EVs in less than a picosecond. **(Fig. 13)**

If an EV is destroyed completely, X-rays ae produced. When an EV is caught in a low-inductance circuit, it releases its energy so rapidly as to produce X-ray photons with about 2 kv of energy. The EV impact also can produce thermionic pulse emisssions andphenomena --- most notably, atomic transmutations. **(Fig. 14)**

EVs can be used as an electron source. Secondary emission of electrons from passing EVs can be collected out the top of the RC guide groove, but there is a relatively long time constant for recharge. LC guides have a much faster recharge rate and can be used to generate radio frequencies.

According to Shoulders, "There is a reciprocal relationship between the EV velocity along the channel guide and the output cavities, in conjunction with the collector electrode arms, that determines the frequency of the radiation provided. The frequency produced is equal to the speed of the EV multiplied by the inverse of the spacing between the slots... The shapes of the openings in the counterelectrode determine the wave forms to be produced. Aperiodic waveforms, which may be employed for driving various computer or timing functions, can be generated... by appropriately shaping the counterelectrode openings... The load on the collector electrode must be proportioned according to the bandwidth of the generated waveform."

LC guide structures also can be shaped as "wigglers" or circulators. A charge under acceleration radiates energy at a frequency which is determined by the acceleration of the charge. Intensity varies in relation to "the geometry of the radiation source and the number of charges involved. Thus a radiation source can be produced by a slowly moving charge in a small radius or a fast moving charge in a large radius. The time for one complete circulation defines the frequency. Furthermore, the radiation pattern from a circulating charge is equivalent to two lines of charges oscillating in a sinusoidal manner with a phase angle of 90^o to each other." Harmonic radiators, phased array antennas, etc., also can be utilized.

LRC (Inductance/Resistance/Capacitance) resonant guide circuits can be designed for many applications; i.e., toimprove the recharge time constant without necessitating doping of the dielectric material. Stray charges are removed by a thin metal coating on the walls of the guide.

According to Shoulders, "The coating would optimally be in the range of 200-500 angstroms, where good optical reflectance is obtained for the EV, but where the resistance along the channel is moderately high. Aluminum and molybdenum are good classes of materials for coating the guide... **[Fig. 15]**

"The circulators and the wiggler type of radiators... are directly applicable to a wide range of collision avoidance and communications applications where the generator array is directly exposed to the environment being radiated... By using EV circulators having... a frequency of 3 GHz (a wavelength of 10 cm), this entails the use of a circulator having a physical dimension of 3 cm for light velocity circulation or 4.3 cm for 1/10 light velocity EVs. These radiators... can be placed in an array of thousands laid out on a plane substrate of only a few inches on a side... For a pulse system, they have to be turned on at different times as well as phase controlled. This is a complex switching pattern for thousands of sources, but it is within the capability of an EV switching system to do this..."

A phenomenon occurs when dealing with EVs that is not available when using conventional wiring methods. Crossed guides can be established at 90^o to each other (on XYZ axes) without the effect of "shorting" that would occur in a wired circuit.

The passage of an EV along a traveling wave tube or planar device results in sudden accumulation of negative charge yielding direct current at the collector electrode. Under optimal conditions, the output of the device exceeds that necessary to generate the EV. Shoulders offers, "For example... an input pulse of 1 kv through the input resistor of 1500 ohms, and an output pulse of 2 kv through the helix having an impedance of 200 ohms, the ratio of the output peak power to the input peak power is 20,000,667 = 30. This result must be multiplied by the ratio of the width of the output pulse to the input pulse width, which was given as 16 ns¸ 600 ns = 0.027. The resulting corrected energy conversion factor is 0.027 x 30 - 0.81... A portion of the input energy is lost to excitation of the gas in the traveling wave tube...

"Under preferred conditions, the gas pressure is reduced to the lowest value that will sustain the EV generation... With the input pulse length reduced to 5 ns for example, the corrected energy conversion factor becomes (16¸ 5)¸ 30 = 96. That is to say, with the input pulse lengths reduced as noted, **energy available at the output of the helix of the traveling wave tube is 96 times the energy input to the traveling wave tube, in addition to the energy consumed within the traveling wave tube and the energy available in the form of collected particles at the collector electrode**.

"Even a greater energy conversion factor is available if the input pulse is further reduced; an EV may be generated with an input pulse as short as 10^{-3} ns. The EV is a mechanism for tapping a source of energy [probably the zero-point] and providing that energy for conversion to usable electrical form... I believe a large portion of the electron charges contained within an EV are masked, so that... the EV does not manifest to external measuring devices a charge size equal to the total charge contained within an EV."

The residual charge carried by a 3-micrometer EV striking an electrode is 2 x 10^{10} electrons. As many as 3.5 x 10^{14} electrons can be shed by a 10-micrometer EV while traveling 1 mm. There are some indications that an EV may explode once it reaches a critical lower charge or density. Shoulders has calculated that the current density of an EV is about 6 x 10^{11} amps/cm^3. Its rate of emission would be approximately 1.7 x 10^6 amps. The lifetime of an EV is approximately 3 x 10^{-11} second. His calculations show the charge density to be about 6.6 x 10^{23} electrons/cm^3 , which approximates that of a solid.

Shoulders claims that "At this point I can fall back on the paper of Bergstrom... and claim that the motion of contained charges is indeed what binds them to the remaining charges forming the entity. At this same juncture, I can step over into the holy region of the vacuum, or polarizable ether, as Bergstrom called it, and begin to look for the sustaining process that keeps the entity intact for longer than it would seem possible from initial energy input considerations. I will invoke zero point fluctuations as the ubiquitous energy source to sustain the life of the EV... I claim that **the initial motion of electrons set up at the time of an EV formation is kept in equilibrium or compressed further by the electromagnetic input from the zero-point fluctuations**...

"Since the ZPF energy supply rate is limited (probably by coupling considerations) there is a finite extraction rate of energy from the electrons in the potential well created, before the stability criterion for the well is exceeded. If this rate is exceeded, as it may well be upon contact between an EV and a metal, then the EV explodes, giving up its container energy into whatever region of the radiation spectrum is most appropriate. There are indications that this may be the soft x-ray region for 1 micrometer beads... The constant diameter of bored holes [in aluminum oxide] suggests that the device doing the boring was either very high in energy content, and hardly affected by the operation, or that it was being resupplied with energy as it went. I choose the latter explanation..."

Ken Shoulders also has suggested that the EV is a spherical monopole oscillator. As he describes it in the conclusion of his book *EV: A Tale of Discovery*, "This [monopole oscillator] is the perfect generator for vector and scalar potential waves without contamination from either E or B fields. These waves can be thought of as longitudinal waves in the vacuum. They are largely undetectable by standard E and B detecting means but are readily accessible to the monopole world. There appears to be an incredibly large number of useful phenomena yet to arise from using potential effects that are not immediately accessible to the force of E and B fields. This phase determined, force-free world will certainly be another chapter somewhere in the future" of EV research and development.

One of the most important applications of EV technology will be in the transmutation of nuclear waste into non-radioactive elements. Shoulders has a patent pending on the process, called **Plasma-Injected Transmutation**. Other researchers (Rod Neal, Stan Gleason, *et al.*) also have filed for patents on similar applications. EVs apparently function as a collective accelerator with sufficient energy to inject a large group of nuclei into a target and promote nuclear cluster reactions. The composition of EVs allows for the inclusion of some 10^5 nuclides. Ions can be added to EVs until the net charge becomes positive. Such EVs are called NEVs (Nuclide-EVs). According to Shoulders, "The NEV acts as an ultra-massive, negative ion with high charge-to-mass ratio. This provides the function of a simple nuclear accelerator." NEVs can be produced by mechanical energy which is stored in and stored released from a brittle metal lattice by fracto-emission of electrons. In the case of acoustic/aqueous systems, they are generated by charge separation in a collapsing bubble. Analysis of palladium foils after they were struck by NEVs has revealed increased quantities of Mg, Ca, Si, Ga and Au. Locally produced fracto-emission induced by NEV strikes contribute a considerable amount of energy to the reactions and can initiate a "wildfire" propagation of energy which either triggers or fuels the events.

Shoulders concludes that "such nuclear reactions are fundamentally an event involving large numbers and not one of widely isolated events working at an atomic level." These events occur within a few tenths of a picosecond. The first step is a loading process process that renders the material brittle. Then a very rapid fracture generates a NEV, compression-loaded with available nucleons (i.e., 100,000 deuterons in an electrolytic cold fusion cell). The NEV is accelerated into the parent material by the applied voltage which, though it is only in the kilovolt range, has a velocity equivalent to megavolts due to the mechanism of the accleration in the fracture. Shoulders offers an *ad hoc* explanation of these results as being "due largely to a *nuclear cluster reaction* having an unknown form of coherence."

Ken Shoulders has demonstrated the complete elimination of radioactivity in high-level nuclear material. Whatever the mechanism may be, the neutralization of our huge stores of radioactive waste by EV technology will be a great wonderment and blessing, for which we can thank Ken Shoulders.

References

Kenneth R. Shoulders: P.O. Box 243, Bodega, CA 94922-0243 USA
Shoulders, Kenneth R.: U.S. Patent5,018,180 (Cl. 378/119); "Energy Conversion Using High Charge Density" (May 21, 1991).
Shoulders, K.: U.S.P. 5,054,046 (Cl. 378/119); "Method & Apparatus for Production & Manipulation of High Density Charge" (Oct. 1, 1991).
Shoulders, K.: U.S.P. 5.054,047 (Cl. 378/119); "Circuits Responsive to & Controlling Charged Particles"
(Oct. 1, 1991).
Shoulders, K.: U.S.P. 5,123,039 (Cl. 378/119); "Energy Conversion Using High Charge Density" (June 16, 1992).
Shoulders, K.: U.S.P. 5,148,461 (Cl. 378/119); "Circuits Responsive to & Controlling Charged Particles" (Sept. 15, 1992).
Shoulders. K.: USP # 5,018,180' Plasma Power Generator.
Shoulders, K.: *EV: A Tale of Discovery*; 1987, Jupiter Technology, Austin TX.
Bergstrom, Arne: *Physical Review* 26: 720 (1955).
Boyle, W.S., et al.: *J. Applied Physics* 26: 720 (1955).
Kisliuk, P.P.: *Bell Lab. Records* 34: 218 (1956).
Lafferty, J.M.: *Vacuum Arcs Theory & Application*; 1980, J. Wiley & Sons.
Mesyats, G.A.: *IEEE Transactions on Electrical Insulation* EI-18 (3): 218-225 (June 1983).
Nardi, V., *et al*.: *Physical Review* A-22 (5): 33266-3269 (15 May 1980).
Schwirzke, F.: *J. Nuclear Materials* 128/129: 609-612 (1984).

Figure 1: (a) EV & (b) EV Chain

Figure 1: (a) EV & (b) EV Chain

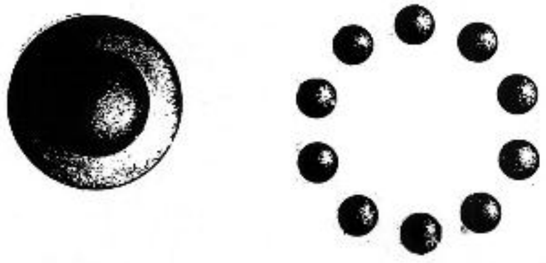


Figure 2:EV Generator

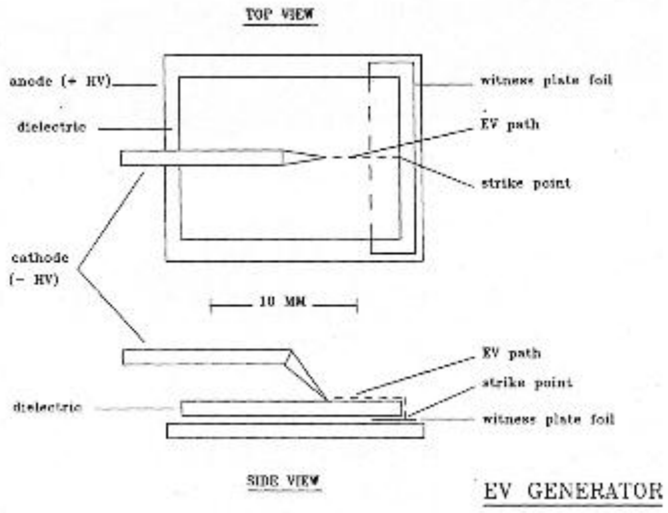


Figure 3:EV Sources

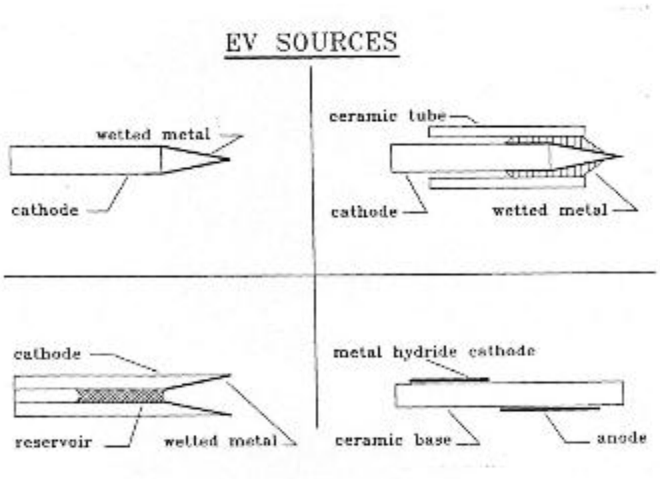


Figure 4:EV Launcher

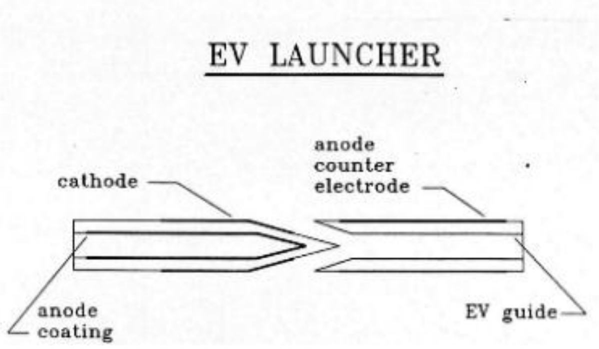


Figure 5:Gas EV Guide

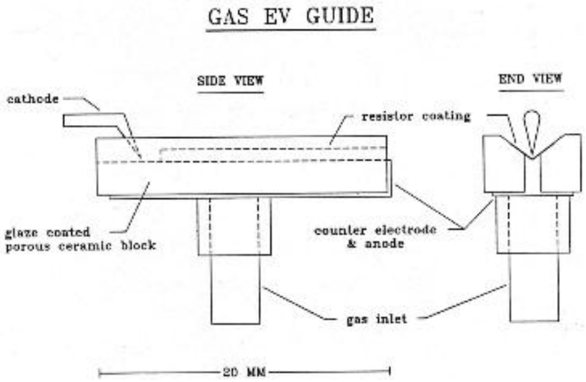


Figure 6:Quadrupole LC EV Guide

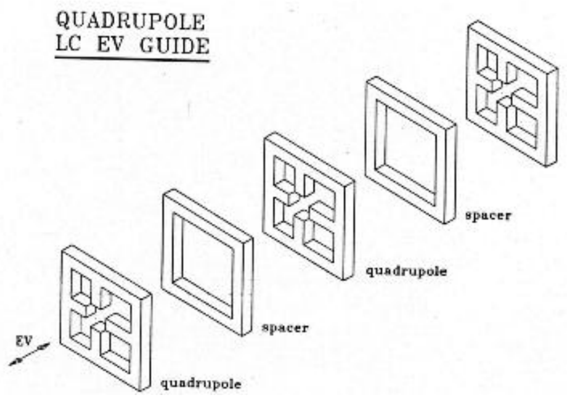


Figure 7:EV Selectors

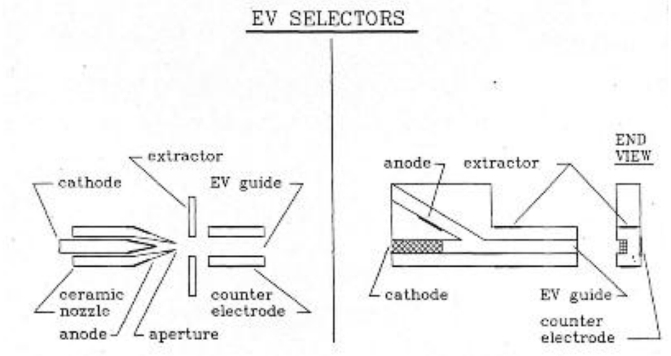


Figure 8:EV Splitters

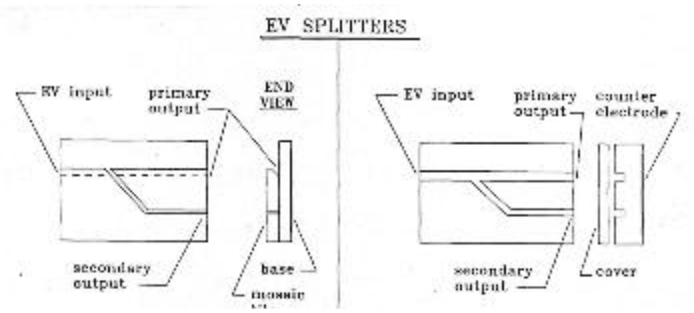


Figure 9:EV Separators

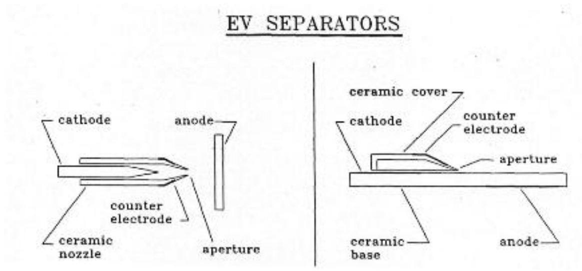


Figure 10:EV Picoscope

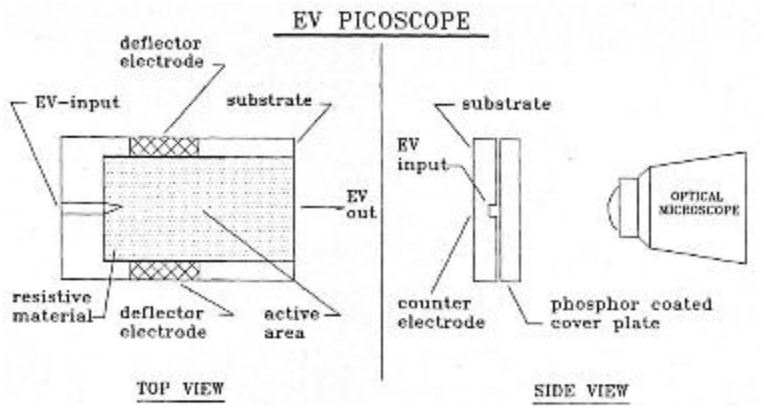


Figure 11:Electrodeless EV Source

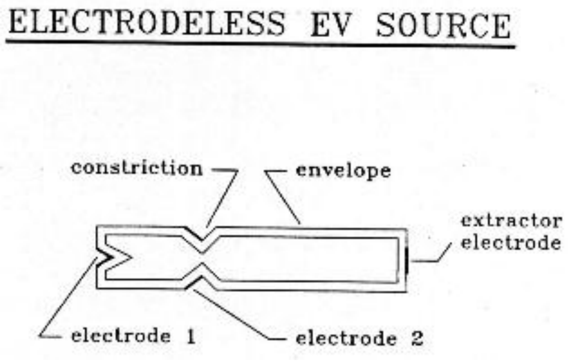


Figure 12:EV Coupling to Traveling Wave Circuits

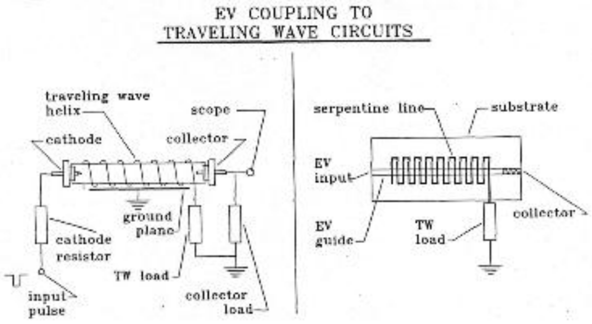


Figure 13:Pulse Generator

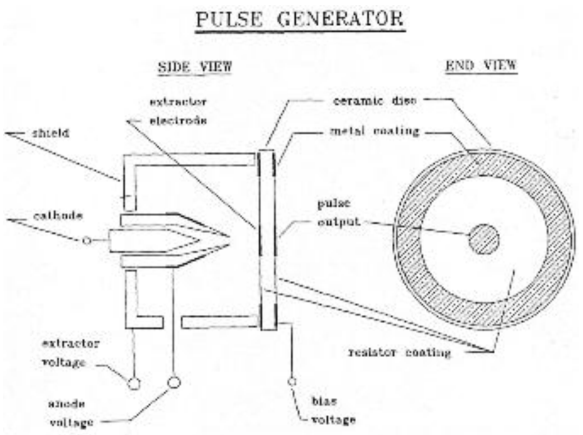


Figure 14:EV Point X-Ray Source

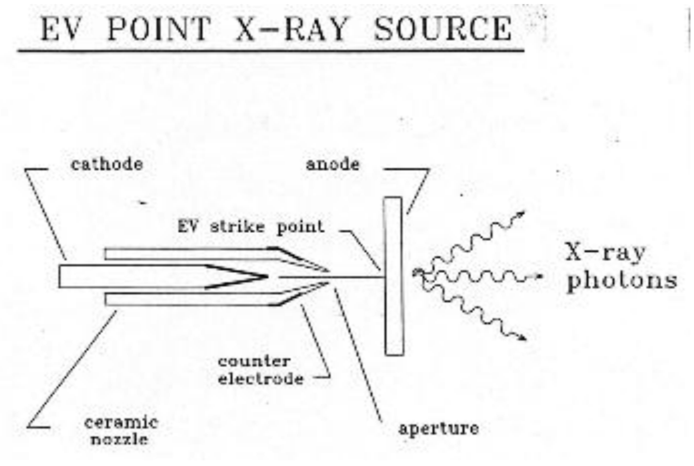
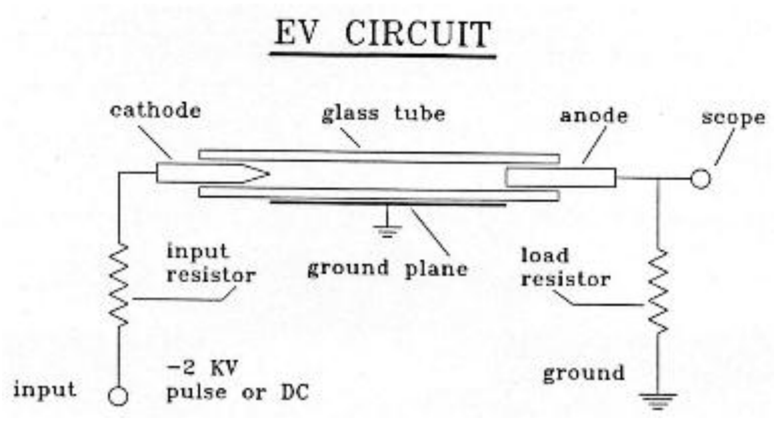


Figure 15:EV Circuit



Joseph SPITERI-SARGENT

Water Pump

http://www.timesofmalta.com/business/view/20071220/news/water-pressure-energy-transfer
Thursday, 20th December 2007

Water Pressure Energy Transfer

by

Malcolm Naudi

Joe Spiteri Sargent recounts how, on a lonely drive to Banff, in Canada, way back in 1989, he got a flash of inspiration that enabled him to go on to develop the Spiteri Water Pump.

The former Malta Drydocks apprentice, who spent 32 years in Canada and has residences in both countries, was missing a vital piece in his theoretical model, which he has since developed into a fully fledged prototype.

He is now seeking funding to develop a second-generation machine and obtain an international patent.

Mr Spiteri Sargent, 71, took an aeronautical draughtsman's course and in 1956 got a job in the Canadian Air Force as a navigator trainee. He completed his university education as a mechanical engineer and worked for 27 years as a tool and die, and single-purpose-machine designer.

He owes the original inspiration to his invention to former Prime Minister Dom Mintoff, who in 1980 said: "If only Malta had some sort of a waterfall, our electricity would be much cheaper." It is this principle of using water pressure to create a waterfall to power a turbine that is the nub of Mr Spiteri Sargent's invention.

In 1991, he started working on the project more intensely, performing experiments in Canada. Between 1991 and 1994, he wrote a force and energy analysis and then started building a working prototype in a four-metre high tank in Luqa.

Parts for the prototype were built at Malta Drydocks according to working drawings supplied by Mr Spiteri Sargent. The basic, fundamental formula has not changed but he has continued to improve components to make them more resistant.

By 2004, he was convinced that the prototype satisfied the force and energy analysis and last June he applied for an international patent, covering the US, China, Japan and Russia.

This is a two-and-a-half-year process, including a request in six months' time for a technical review, which takes two years to obtain. Development, however, can continue and it will be covered by the patent. Meanwhile, on December 6 the patent was published in Malta and the UK.

Mr Spiteri Sargent's work has been verified by two other engineers with master degrees in water technology. One of the engineers, Ing. Marco Cremona, told The Times Business that one of the fundamentals of physics is that you cannot create energy out of nothing.

"When you have a submerged body in water there is latent hydrostatic energy in place. The invention exploits this energy." He gave as an example an air-conditioner on heating mode. This device, he said, appears to produce three times more energy (as heat) than it consumes (in electricity). However, this does not go against the laws of physics.

"The reality is that the air-conditioner is taking advantage of latent (hidden) energy outside the room and transferring it into the room. It is not generating energy; it is transferring energy. The Spiteri Water Pump works on the same principle."

Twenty-two family members and friends have an investment in Sargent Enterprises Ltd (SEL), which has enabled him to develop the prototype up to the current stage.

He has already received interest from a UK water pump manufacturer, who visited Malta and saw the prototype. "I am looking for a joint development agreement, involving an investment of €900,000 into SEL," Mr Spiteri Sargent said. This will be used to build the second-generation prototype, which will be a larger scale version of the Luqa prototype with some improvements. The aim is to have a prototype that can be presented to large-sale investors like General Electric, Shell, BP and Siemens.

The Spiteri Water Pump will convert hydraulic energy into mechanical energy. This is then used to pump water into a reservoir, generating electricity through the hydroelectric power system from the reservoir's waterfall.

This machine is a low-tech prime mover suitable for various applications, such as electrical power, gas compression, pumping water and-other-mechanical uses. His second-generation-prototype is the Spiteri Hydroelectric power station, consisting of six Spiteri water pumps with sufficient output to provide electricity for 120 households.

A bigger version of this model can generate an output of 250kW, and several of these modular units can generate enough power to meet as much as a quarter of Malta's electricity consumption.

Mr Spiteri Sargent has also been in touch with the local authorities, with a view to using Malta as a test bed.

He estimates that to replace this amount of Malta's fossil-fuel fired generating capacity, 11 sites are required, each having a footprint equivalent to a football pitch.

These small generating stations can be built on land, underground or in the sea.

jspiterisargent@keyworld.net

---

http://www.timesofmalta.com/articles/view/20080601/local/maltese-energy-invention-wins-international-award
Sunday, 1st June 2008

Maltese Energy Invention Wins International Award

The Spiteri Water Pump, a fuel-free, electricity-generating machine, walked away with the national prize during an awards ceremony held at the European Parliament in Brussels.

Developed by Joe Spiteri Sargent, the machine operates under a water surface and harnesses latent hydrostatic energy naturally present in a body of water, transferring it to produce an artificial waterfall to produce electricity via a hydro-electric power system. Present for the 2007 Energy Globe Award ceremony were Mr Spiteri Sargent and hydrologist Marco Cremona, who was also involved in the project.

A total of 853 project submissions were made from 109 countries, falling under five categories: earth, fire, air, water and youth. The Malta project was submitted in the fire category. A working prototype has been constructed in Malta and worldwide patents have been filed.

According to Mr Spiteri Sargent, the main benefits of this innovative product are that it has very low running costs and operates without the use of consumables.

Furthermore, it can be placed in any water body in the world and produces energy 24 hours a day, seven days a week. There are no emissions from this energy transfer process.

The winners were selected by a panel including members from the UN Industrial Development Organisation, the World Bank and the European Renewable Energy Council. The awards were an initiative by engineer and environmentalist Wolfang Newmann Wolfgang Newmann.

The awards have been dished out annually since 1999 to recognise projects that 'make careful and economical use of resources and employ sources'.

For the second year in a row, the ceremony was held at the Plenary Hall of the European Parliament in Brussels. A number of high-profile personalities were present including EP President Hans-Gert Pottering, European Commission President José Manuel Barroso, former UN Secretary General Kofi Annan as well as former Soviet President Mikhail Gorbachev as honorary guest.

---

http://v3.espacenet.com/textdoc?DB=EPODOC&IDX=WO2007141653&F=0

WO 2007141653
Apparatus for Conversion of Energy

Abstract -- Apparatus for conversion of hydraulic energy into kinetic energy, the apparatus comprising: a housing (15) containing a fluid; a pump motor (20) submerged within the fluid, the pump motor pivotable within the housing about a fixed pivot point (30); a buoyant member (35) contained within the pump motor; a ballast member (50) contained within the pump motor, the ballast member containing a ballast tank (95); transfer means (55) coupled to the buoyant member to transfer the upward movement of the buoyant member within the pump motor; and a pressure differential means (25) operable to move the ballast tank upwards within the pump motor.

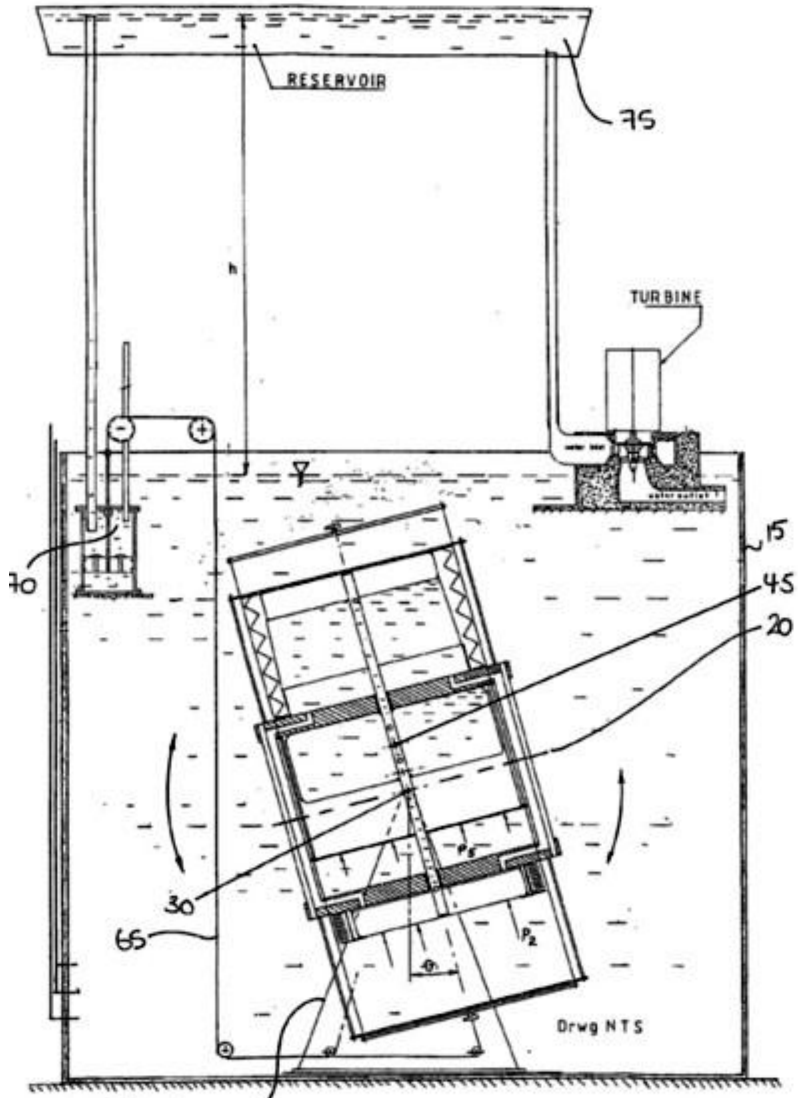


FIG. 1

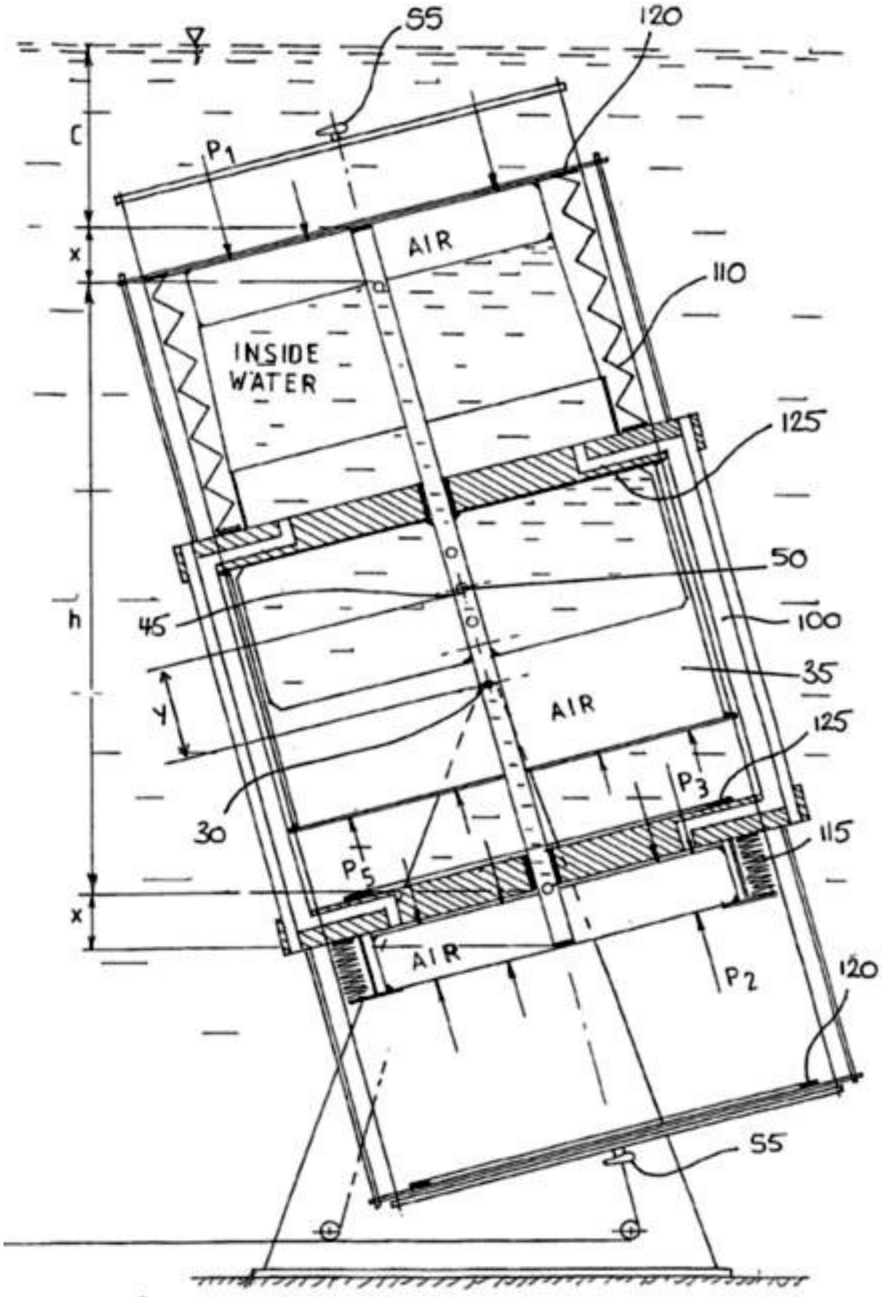

55
120
C
P1
X
AIR
110
INSIDE
WATER
125
50
h
45
100
35
Y
AIR
125
30
P3
115
P5
X
AIR
P2
120
55

FIG 1A

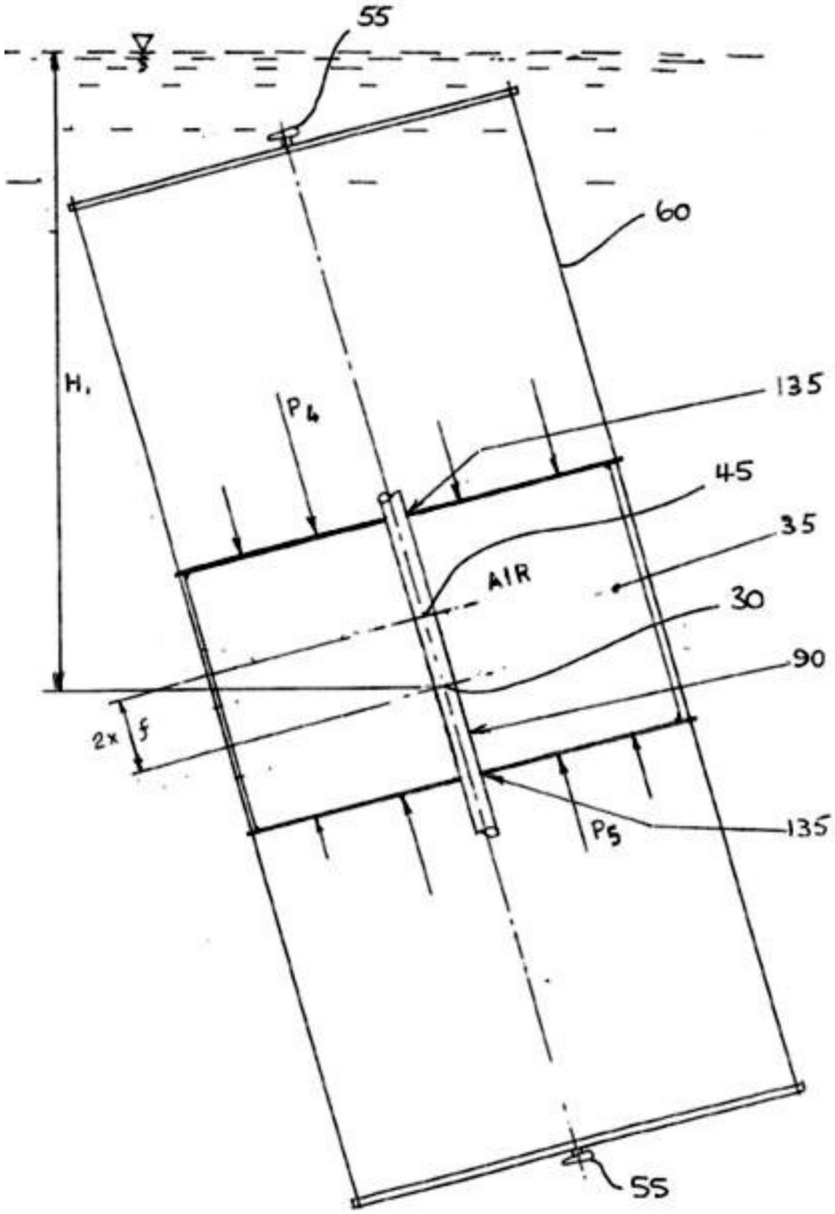
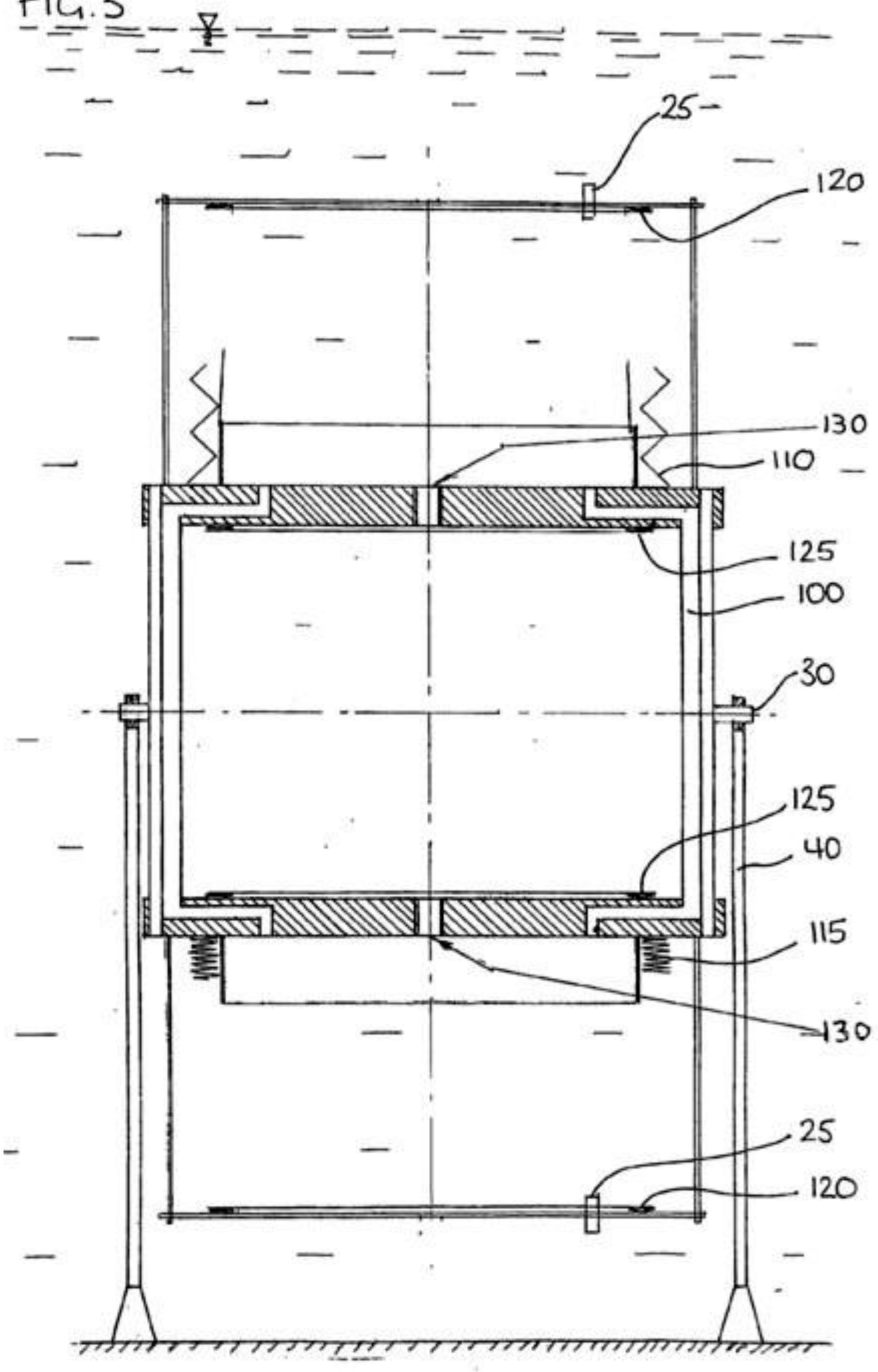
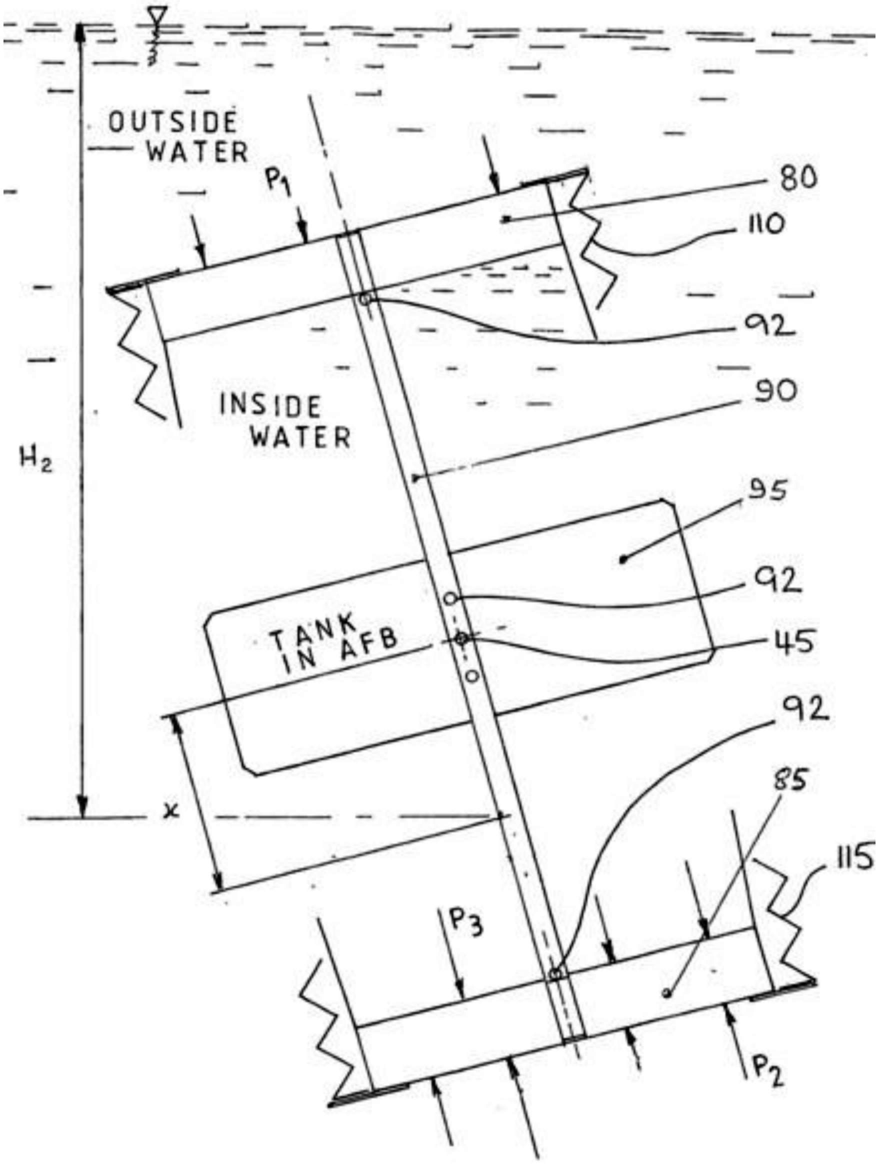


FIG. 2

FIG. 3





Ballast member 50

FIG. 4

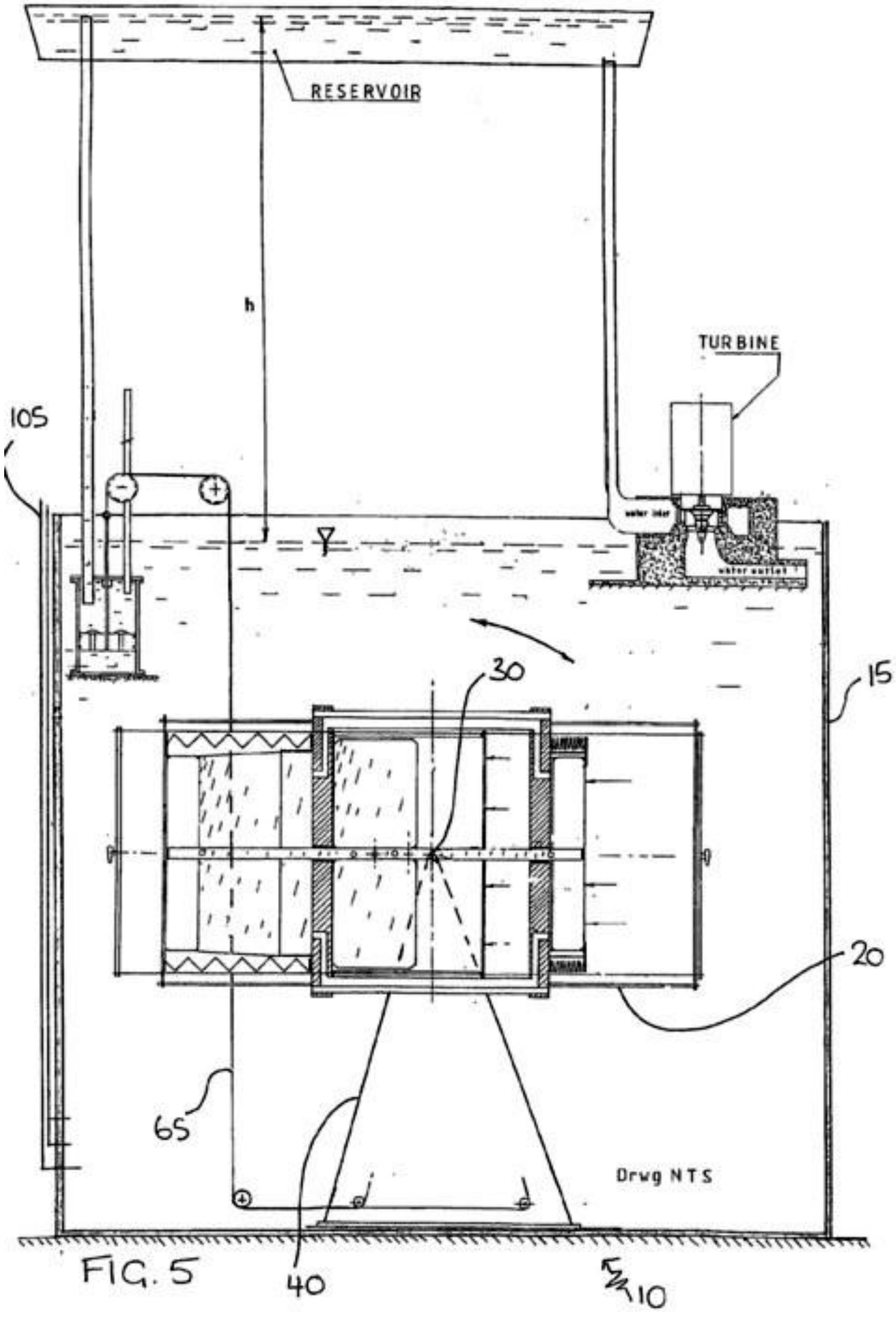

RESERVOIR
h
TURBINE
water inlet
water outlet
105
15
30
20
65
40
10
Drwg NTS

FIG. 5

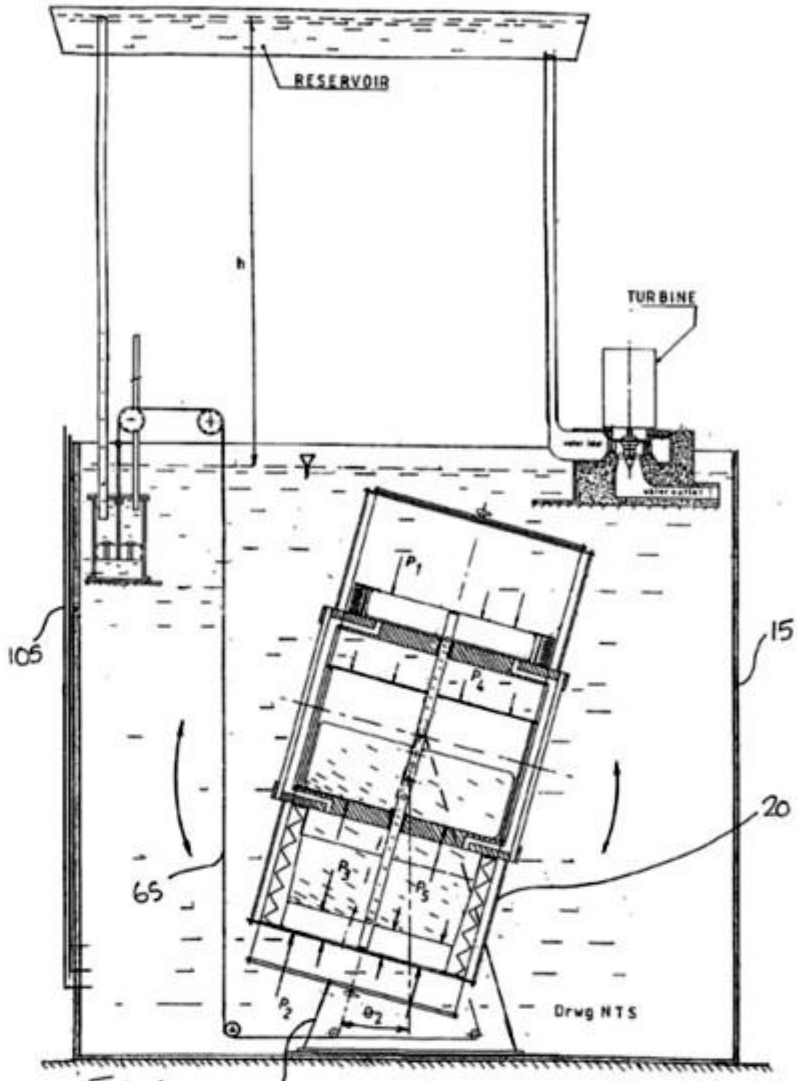

RESERVOIR
h
TURBINE
water inlet
water outlet
105
15
P_1
P_4
20
65
P_3
P_3
P_2
θ_2
Drwg NTS
40

FIG. 6

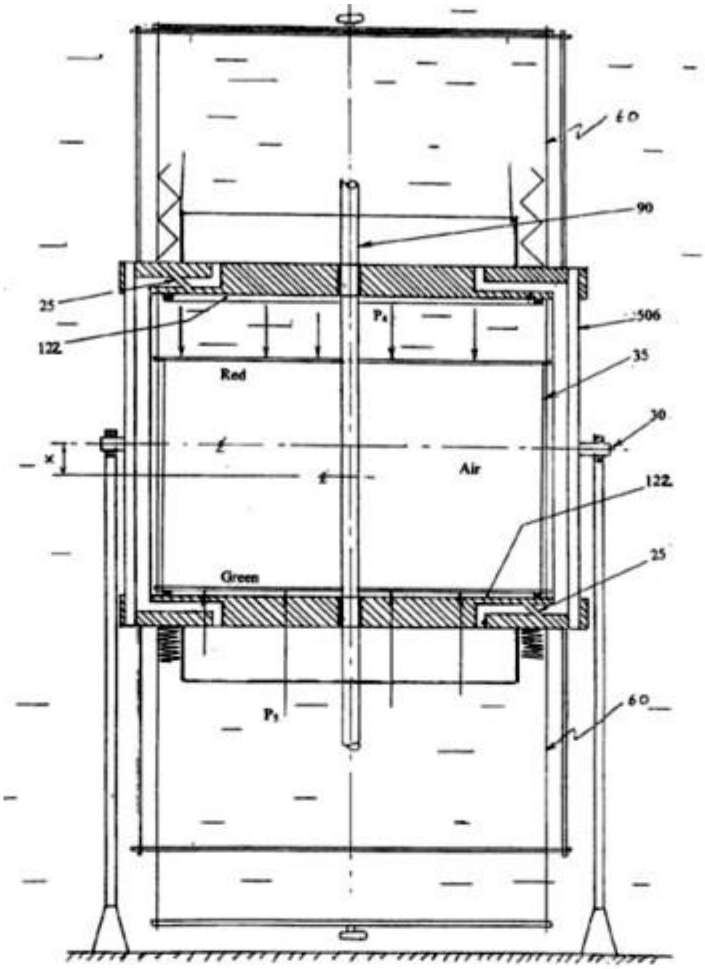


FIG. 7

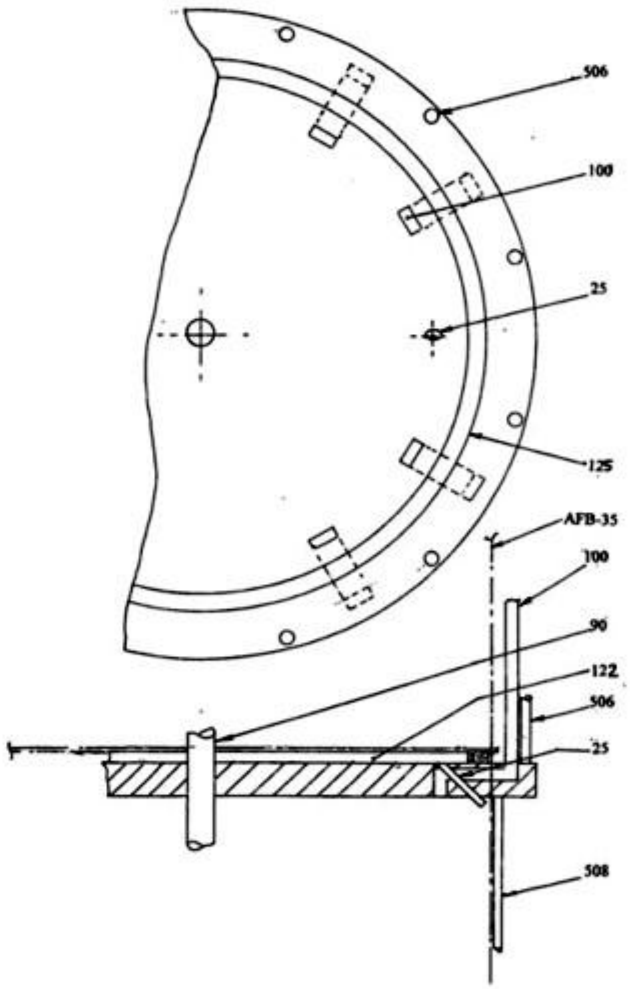


FIG. 8

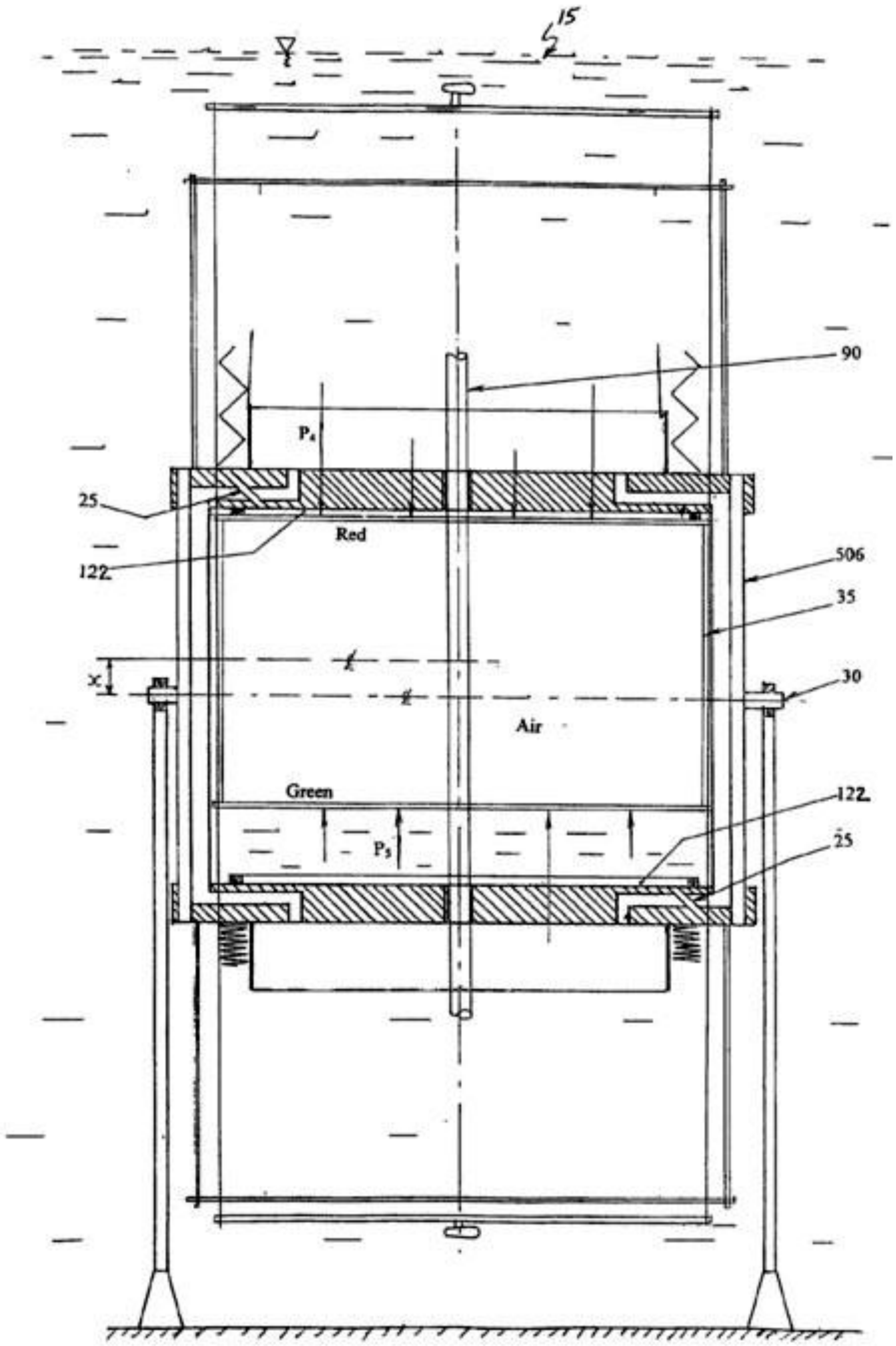


FIG. 9

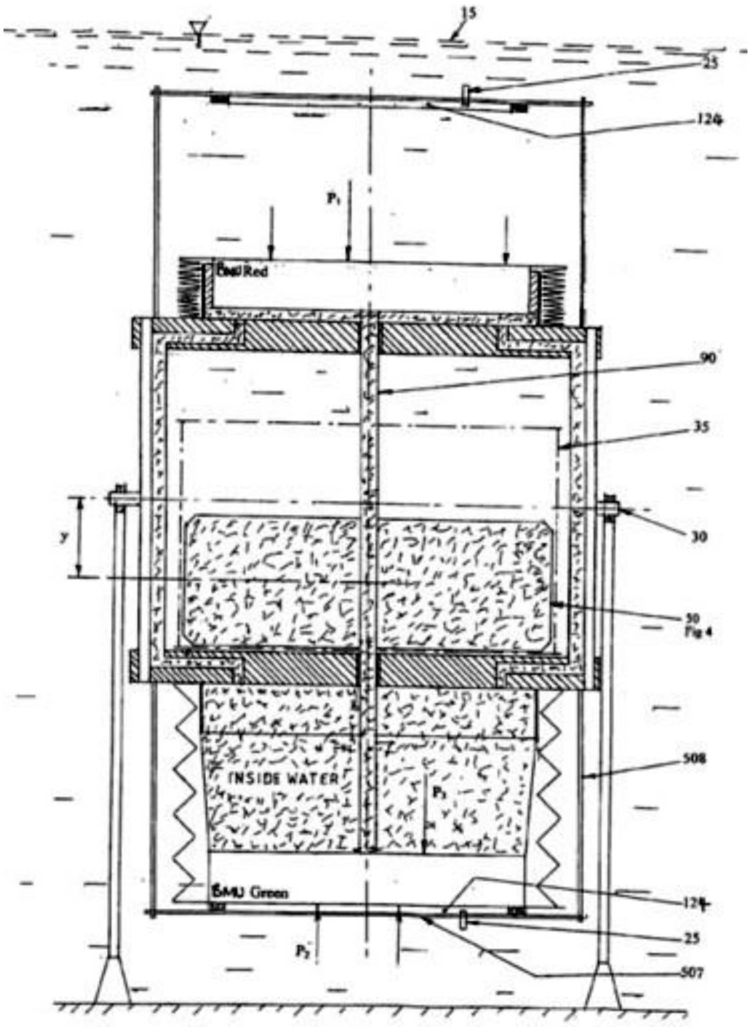

15
25
124
P1
SMU Red
90
35
y
30
50
Fig 4
INSIDE WATER
P3
508
SMU Green
124
25
P2
507

FIG. 10

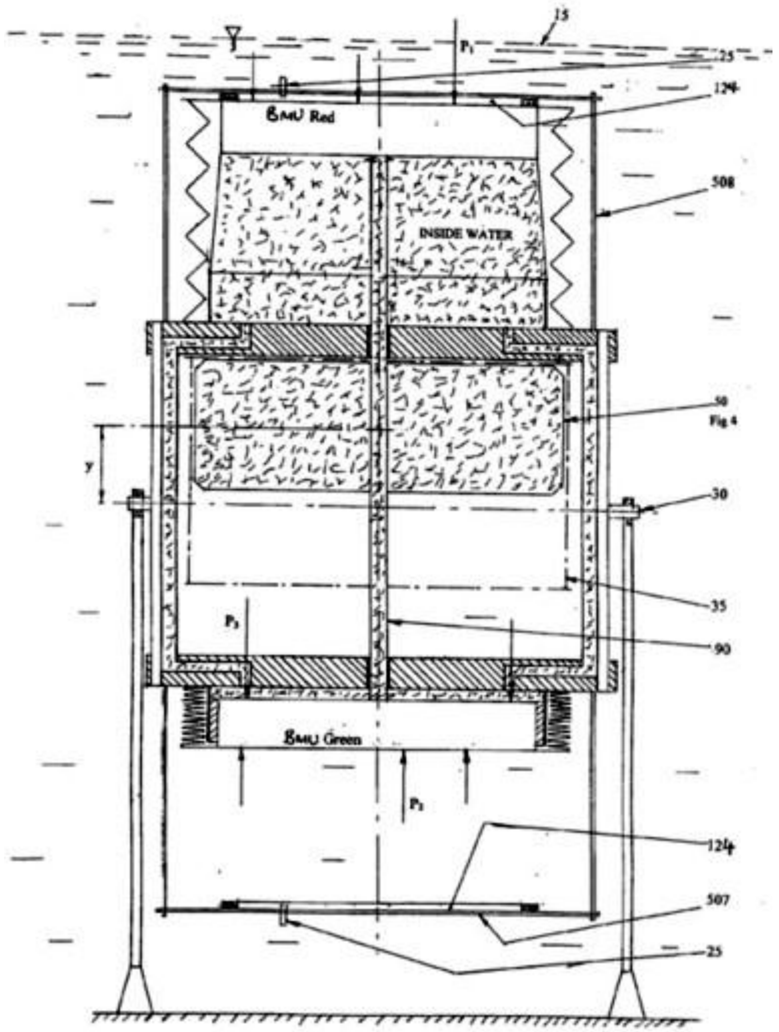

15
P_1
25
124
BMU Red
508
INSIDE WATER
50
Fig 4
y
30
35
P_3
90
BMU Green
P_2
124
507
25

FIG. 11

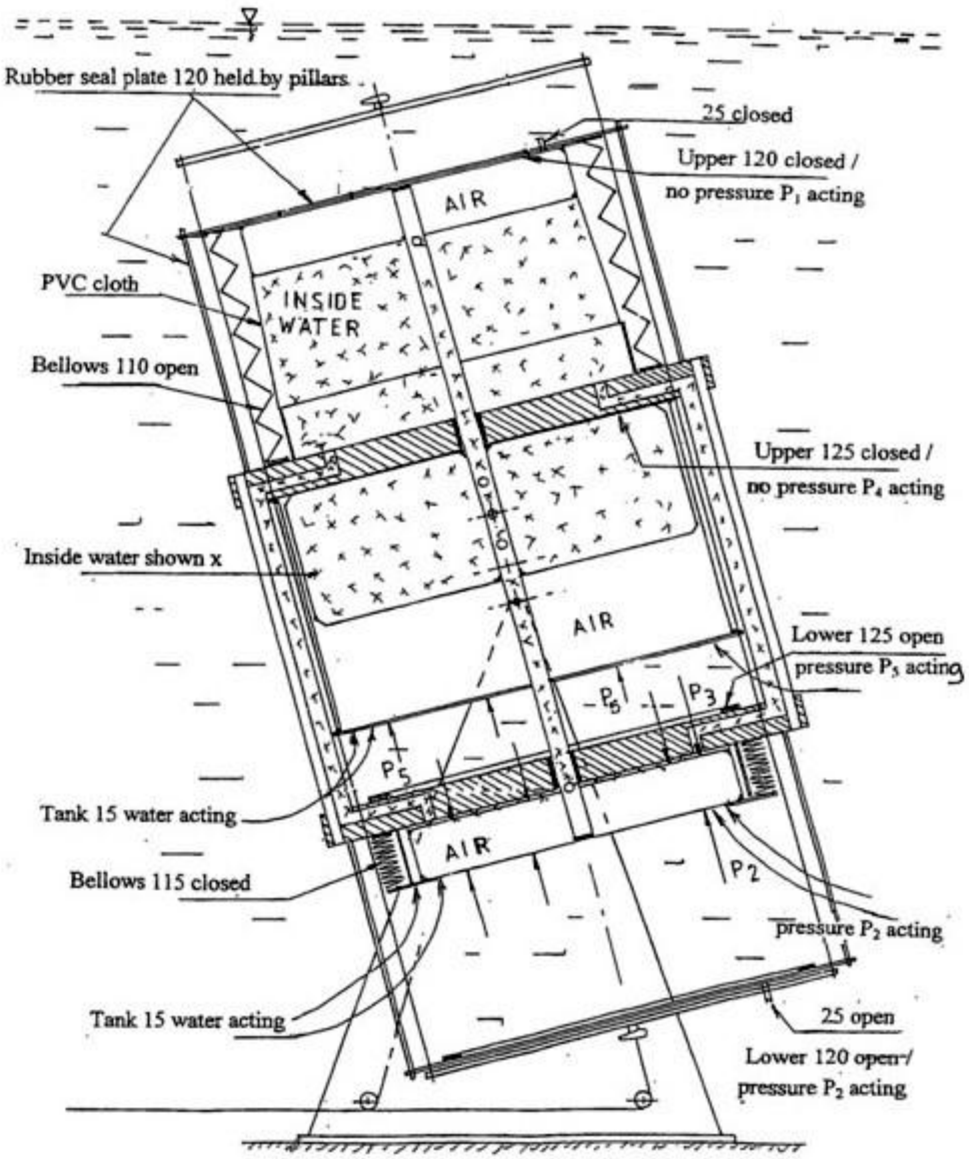

Rubber seal plate 120 held by pillars
25 closed
Upper 120 closed / no pressure P_1 acting
AIR
PVC cloth
INSIDE WATER
Bellows 110 open
Upper 125 closed / no pressure P_4 acting
Inside water shown x
AIR
Lower 125 open pressure P_5 acting
P_5
P_3
Tank 15 water acting
P_5
Bellows 115 closed
AIR
P_2
pressure P_2 acting
Tank 15 water acting
25 open
Lower 120 open / pressure P_2 acting

FIG. 12

William STONEBURG

Power Supply

***Largo-Seminole Times* (6-7-1983)**

"Largo Man Builds Self-Charging Power Supply"

by

Chuck Albury

The working model of William G. Stoneburg's power plant isn't all that impressive.

A few gauges on a crude panel board. An alternator that came out of a police cruiser.

A motor that has seen better days. And some wire coils that form a homemade direct current to direct current transformer.

"But I could put this on a golf cart, hook it to the batteries, and drive to Jacksonville or all the way to New York", he says.

What Stoneburg says he has done is invent something that can recharge an electric power plant while it is in use.

"I know it works because it was tested successfully on a small electric car", he emphasizes.

But it doesn't stop there. According to Stoneburg, the device could just as easily supply the necessary power for a house or an even larger system.

Stoneburg, who learned about electricity and motors while he was serving in the US Navy, had a refrigeration and air conditioning shop next door to Custom Gold Carts, owned by Bob Way.

"One day in 1978 I had time to do some thinking and happened to notice all those golf carts, plugged in to recharge their batteries after use", he said. "It occurred to me there must be a better way".

Stoneburg says he first put his ideas on paper and eventually worked out the mathematics of changing high voltage and low amperage to low voltage and high amperage.

"I didn't see why my idea wouldn't work so I built a bench model and still couldn't find anything wrong with it", he said, "but I recognized I didn't have the technical knowledge to completely perfect this".

The system runs of the batteries, which power the motor, which runs the alternator, which puts more energy back into the batteries than they are providing. But it isn't perpetual motion, Stoneburg warns.

"There are things which wear out and must be replaced", he points out.

He does have a US Patent, which protects him in this country. But efforts to interest a US firm in the invention have so far been fruitless. This year he grew tired of waiting and sent 22 letters to foreign governments, seeking their interest. Replies came from Israel, West Germany and France. Stoneburg saw some of their representatives when he attended a trade show in Orlando.

“They are interested”, Stoneburg says, “but they want me to come to their countries and bring my bench model along to demonstrate. That would cost more money than I have. I’ve spent about everything on this project as I can”.

Stoneburg acknowledges that his model is set up to perform only limited bench operations.

“But with proper research and development, it could be applied to power almost anything now operating on petroleum fuels or electricity”, he says. “It could be used as a supplement or total power source package”.

William G. Stoneburg

Can SUEKRAN

Hybrid Heating Mixture

FUNIKA Teknoloji
Bilisim, Ar-Ge, Insaat
Malzemeleri, Madencilik, Makine,
Mühendislik, Mimarlik, Insaat, Taahhüt,
Danismanlik San. ve Tic. A.S.

Taahhüt, Danismanlik San. ve Tic. A.S.
Gümüsler / Denizli / TÜRKIYE
Tel: (0258) 371 58 30 (pbx)
Fax: 0(258) 371 58 29

www.funika.com.tr
www.evgiyimi.com.tr
www.bazaar.funika.com.tr

A Denizli based company FUNIKA Teknoloji A.S. has invented a hybrid heating material called HIM to generate high heating energy using with low electricity

---

http://www.zpenergy.com/modules.php?name=News&file=article&sid=2853

Funika announces over-unity invention, Hybrid Heating Material

Turkey-based Funika Technology has made the laboratory test results of their over-unity invention available online. Funika's claims do not end with high energy output of over 150% efficiency. Apparently, another characteristic of their newly invented material is its capability of absorbing various forms of radiation at much better rates than lead panels of comparable thickness. The company has already signed a licensing agreement with Germany's Energie Team regarding the heating technology. Original report on energy output, along with less than perfect summarized English translations are available at the following addresses. Unfortunately, the lab report on radiation absorption has not been translated into English yet.

A Denizli based company FUNIKA Teknoloji A.S. has invented a hybrid heating material called HIM to generate high heating energy using with low electricity. This new material is a chemical compound of many organic and inorganic materials so that it substitutes resistance wires used to convert electricity to heating energy to heat air, water or oil. It can be used in many areas such as; - heating homes and offices, - heating air, water or oil, - in electrical appliances using resistance wires, bars or plates, - to generate steam etc... The official report has been given by Energy Dept. of Mugla University on 20th Feb. 2008 stating that coefficient of performance (COP) of HIM is 2.25 times more than standard resistance wires.

FUNIKA Teknoloji, Bilişim, Ar-Ge, İnşaat Malzemeleri, Madencilik, Makine, Mühendislik, Mimarlık, İnşaat, Taahhüt, Danışmanlık San. ve Tic. A.Ş.
Taahhüt, Danışmanlık San. ve Tic. A.Ş.
Gümüşler / Denizli / TÜRKİYE
Tel: (0258) 371 58 30 (pbx) Fax: 0(258) 371 58 29
www.funika.com.tr

A REVOLUTIONARY INVENTION FROM FUNIKA

A Denizli based company FUNIKA Teknoloji A.S. has invented a **hybrid heating material** called **HIM** to generate **high heating energy using with low electricity.**

Inventor of this material is Miss Sukran CAN who is the head of our Research and Development Department.

This new material is a chemical compound of many organic and inorganic materials so that it substitutes resistance wires used to convert electricity to heating energy to heat air, water or oil.

It can be used in many areas such as;

- heating homes and offices,

- heating air, water or oil,

- in electrical appliances using resistance wires, bars or plates,

- to generate steam etc...

It is estimated that it will save 1 trillion USD worth of energy per year considering all home, office and industrial use in the world.

The official report has been given by Energy Dept. of Muğla University on 20th Feb. 2008 stating that coefficient of performance (COP) of HIM is 2.25 times more than standart resistance wires.

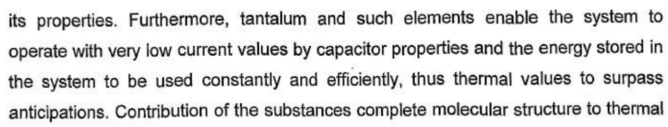
This obtained results have great potential to create important changes in heat industry.

---

http://v3.espacenet.com/publicationDetails/biblio?adjacent=true&KC=A2&date=20090219&NR=2009022998A2&DB=EPODOC&locale=en_EP&CC=WO&FT=D

METHOD OF GETTING HIGH HEAT USING AN HYBRID MIXTURE
WO2009022998 (A2)

2009-02-19
Inventor(s): **SUEKRAN CAN** [TR]
Applicant(s): FUNIKA TEKNOLOJI BILISIM AR GE [TR]; SUEKRAN CAN [TR]
Classification: - international: H05B3/00; H05B3/00 - European: H05B3/12



its properties. Furthermore, tantalum and such elements enable the system to operate with very low current values by capacitor properties and the energy stored in the system to be used constantly and efficiently, thus thermal values to surpass anticipations. Contribution of the substances complete molecular structure to thermal activation at the highest ratio is determined within the microwave frequency range and enabled by specific current pulses. This case shows that it is possible to provide heating with a small battery (or cell) instead of using nuclear power. Therefore, the product to be obtained is economical and suggested to be frequently preferred by having a wide range of application field.

COMPOUNDS COMPRISING THE INVENTION

The invention basically consists of two stages.

*The main carrier agent

- Solids
  - Teflon powder
  - Aluminum oxide
  - Copper oxide
  - Graphite powder
  - Bohr powder
  - Zinc oxide
  - Fiber
  - Barium chlorodihydrate
  - Quartz
  - Black carbon
  - Bohr nitrate
  - Beta silicon carbide
  - Alfa silicon carbide

- Liquids

- Elements with Altered Structure
  - Styrene butadiene styrene
  - Metallic Silicon
  - Metallic Zinc
  - Nano silver
  - Nano carbon
  - Iron
  - Beryllium or compounds
  - Yttrium or compounds
  - Neodymium
  - Ruby
  - Tuco
  - Elmedur
  - Thyral 89
  - Barium
  - Metallic aluminum
  - Tantalum

CLARIFICATION OF THE INVENTION

The invention consists of main carrier agents, teflon powder, aluminum oxide, copper oxide, graphite powder, bohr powder, zinc oxide, fiber, barium chlorodihydrate, quartz, black carbon, bohr nitrate, beta silicon carbide, alfa silicon carbide solids; auto film, polives, polygel, silicone, polychlor, polypol, fibre-glass, silres liquids; styrene butadiene styrene, metallic silicon, metallic zinc, nano silver, nano carbon, iron, beryllium or compounds, yttrium or compounds, neodymium, ruby, tuco, elmedur, thyral 89, barium, metallic aluminum, tantalum elements with altered structure.

Floyd A. SWEET

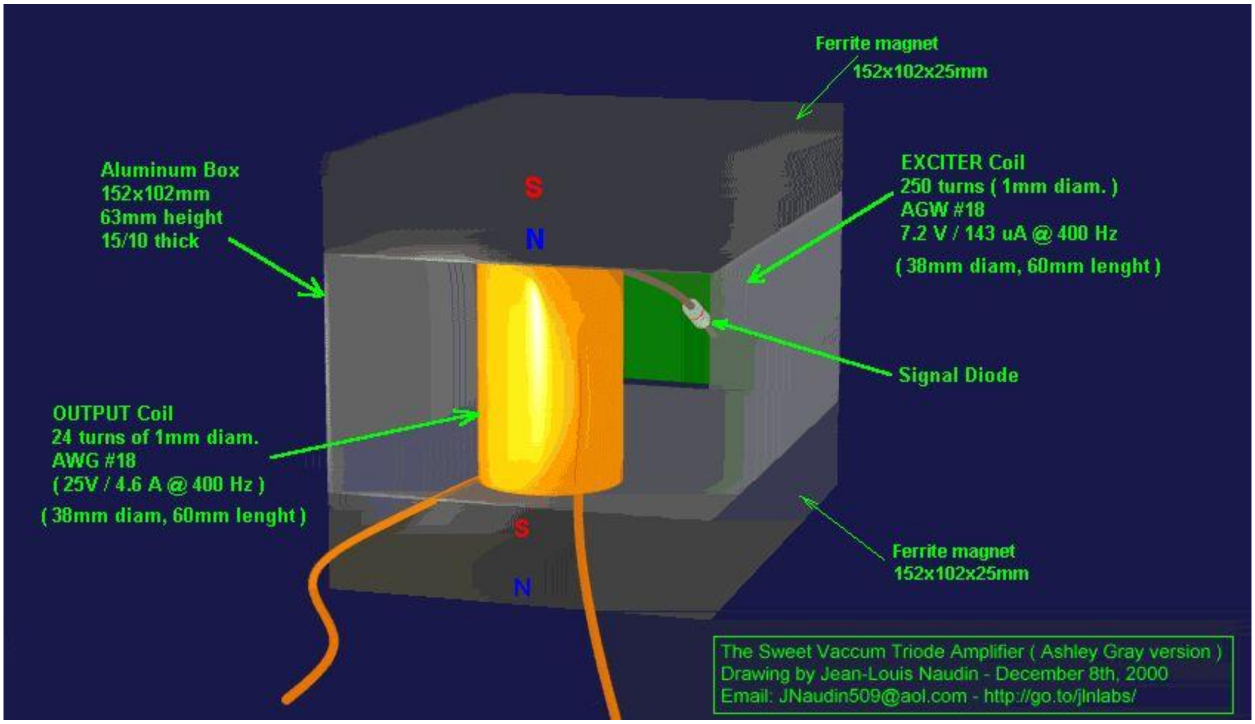
Space Quanta Magnifier
(Vacuum Triode Amplifier)

Floyd A. "Sparky" Sweet

Contents

(1) F. Sweet: Nothing is Something...
(2) F. Sweet & T. Bearden: Utilizing Scalar Electromagnetics to Tap Vacuum Energy
(3) W. Rosenthal: Floyd Sweet's VTA
(4) Notes
(5) Diagrams, Photographs & Video
(6) Jerry Decker: A Possible Key to the VTA
(7) Letter: T. Bearden to Dr Jon Noring
(8) T. Bearden: Progress report on the Sweet Vacuum Triode

Special thanks to: Jerry Decker/KeelyNet, J.L. Naudin, Tom Bearden & Walt Rosenthal
Discussion Group: http://groups.yahoo.com/group/Sweet_VTA



The Sweet Vaccum Triode Amplifier (Ashley Gray version)
Drawing by Jean-Louis Naudin - December 8th, 2000
Email: JNaudin509@aol.com - http://go.to/jlnlabs/

Nothing Is Something:
The Theory and Operation of a Phase-Conjugated Vacuum Triode

by

Floyd A. "Sparky" Sweet

(June 24th, 1988)

[Source: http://jnaudin.free.fr]

Theoretical Overview

Nothing, on the cosmological scale, is virtually everything. It is the home of all the invisible fields, rippling with the activity of every real force. Every kind of matter produces a field, the field all mesh in complex ways, often causing interference with other fields. Fields are the "stuff" of the virtual vacuum. A light particle is nothing more than a large interference in the electromagnetic field. Apart from interaction with matter of other fields a field will not be changed in the vacuum. It will not go away; it cannot. Fields are a fundamental part of the vacuum structure itself. Fields in their most quiescent state form the virtual vacuum itself. Even when everything that can be removed from a vacuum has been removed, the Higgs field remains. `"Imagine the entire universe permeated with a constant magnetic field". One need not imagine, for it is true. It is clear from experimentation that certain results appear that are not explainable without the presence of a field. The field consists of an infinite number of one-dimensional North and South poles in an incoherent state- incoherent due to the presence of a multitude of other interfering fields formed by other North and South poles, or particles or quanta. Thus the virtual vacuum is far from empty, far from nothing, it is rather seething with potential energy as the primordial powerhouse of everything in the universe.

As postulated by Einstein in his famous equation $E = MC^2$, energy is a kind of matter. So even the energy of distant starlight must be accounted for in any holistic view of physical reality. The vacuum itself is literally popping with virtual particles that appear and disappear in the field during instants too brief to be measured. Virtual particles with lifetimes or dwelltimes too short for the name "particles" to be appropriate. As a result the generated fields are always in some state of flux. However, under the influence of a generated Motional Electromagnetic field parts of the normally chaotic virtual field break off from randomness and form a more coherent region. This region consists of a structured portion of the spacetime continuum which by its very nature seems to attract more virtual particles (This increase in particle density has been verified by lab experiments conducted the week of June 19, 1988). This higher concentration of particles develops a warping of the spacetime continuum where negative energy is produced in abundance. The existence of this condition via direct engineering of the virtual state allows for the safe generation of electrical energy. This condition, in essence, forms the underlying principle of operation of the Phase-Conjugated Vacuum Triode. This device, however, produces negative energy which is the reverse of the conventional positive energy generated by all devices in service today. The arc generated by a short-circuit in a negative energy system is excessively bright and cold, producing barely an audible hiss with no explosive force. Melting of conductors does not occur and this type of negative current passes through the human body with only the feeling of a chill. Conductors remain cool under load while only tiny cross-sectional areas of copper are required to convey many hundreds of watts of power. Although all of this seems nearly unbelievable, only what has been demonstrated in the laboratory has been described in this paper. The source of energy is unlimited, the virtual vacuum of space itself structured by a motional electromagnetic field is the powerhouse.

The Nature of Space

Space itself is the ability to accommodate energy. Consider for a moment the following illustration: A signal (energy) is transmitted from point A to point B. A and B are separated by a finite distance. Consider three periods of time:

1) The signal is launched from A.
2) The signal resides in the space between A and B.
3) The signal arrives at B.

If (3) occurs simultaneously with (1) we say that the signal has traveled at infinite velocity. The signal has never resided in the intervening space and therefore there exists no space between A and B. A is virtually at the same point in space as B. For real space to exist between A and B it is necessary that a signal travelling between them be "lost" with reference to both points for a finite period of time.

Now we know that for real space to exist between two points a signal travelling between them will propagate at a finite velocity c $(c=1/\sqrt{\mu\varepsilon})$. If a signal will not travel between two points, as in the case when $c = 0$, then we can also conclude that there is no link or intervening space between them. We have no means of detecting either an infinite velocity-supporting space or zero-velocity space, so they do not exist as usable scientific concepts. If space cannot accommodate a signal it has no function and no reality. We are left then with the only real space, the home of the real and virtual vacuum. Space which supports a finite, nonzero velocity where $c=1/\sqrt{\mu\varepsilon}$.

The above discussion dealt with a definition of space and the propagation velocity it will support. A similar argument applies to the impedance of space. A medium can only accommodate positive energy if the medium resists it to a reasonable degree. Neither an infinitely strong spring nor an infinitely weak one can absorb or accommodate energy by being compressed. Neither an infinitely large mass nor an infinitely light mass can absorb or accommodate energy imparted by collision. The same holds true for space. Energy cannot enter space of zero impedance (i.e; $\sqrt{\mu/\varepsilon}=0$) any more than a force can bear on a mass of zero magnitude. Similarly, energy could not enter space of infinite impedance. It follows therefore, that necessary properties of real space are:

1) finite propagation velocity
2) finite impedance.

Continuing our discussion of space and the values of c, Z_o, μ, ε we take as given that real space sustains non-zero finite impedance and velocity as follows:

$$c=1/\sqrt{\mu\varepsilon} \quad Z_o=\sqrt{\mu/\varepsilon}$$

where: μ and ε are characteristics of a unit volume.

As yet we have not arrived at volume, which implies real space. At this point in our discussion we have merely described c and Z_o . Therefore, we can only define μ and ε in terms of them. Algebraically it can be shown that:

$$\varepsilon = 1/cZ_o \quad \mu = Z_o/c$$

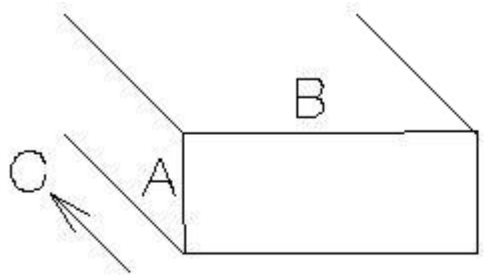
Although we have said that the fundamental characteristics of space are c and Z_o , perhaps it is better to say that they are t and Z_o , where t is the time delay through a finite segment of space replacing c, the velocity through that segment. It is profitable to move away from the idea of constant velocity c travelling through space which leads one to conceptualization of a segment of space which traversed in 1 nanosecond (nsec) is 1 foot long. If one starts with a conceptual frame in which space is in terms of t, a segment of space can easily be though of as 1 nsec wide, and the energy entering it appears leaving it 1 nsec later. Subsidiary concepts of length and velocity can then be deduced as needed. We could alternately say that space was (a) 1 foot wide with a propagation velocity of 1 foot/nsec, or (b) 2 feet wide with a velocity of 2 feet/nsec. Fundamental to the proposed world view is the reality that no experiment could help us decide between (a) and (b). The essence of space is time, not distance, and only one propagation velocity ($1/\sqrt{\mu\varepsilon}$) is possible through a segment of space. Thus, time through a segment is intimately related to the length of the segment. Propagation which is not at the speed of light cannot exist according to this world view.

General Description of Energy Transfer

Consider energy, flowing straight and level down the proximity of a transmission line. The energy does not know the width of the channel through which it is passing. If the energy reaches a point where the dielectric changes (but not the geometry), some of it will continue on and some of it will reflect. If the energy reaches a change in the width of the transmission line some will reflect and some will continue as well. The energy current will not know whether:

(a) the dielectric is changing, or
(b) the geometry is changing.

Energy current does not have directional inertia, so that (a) is equivalent to (b). Energy current does have an aspect ratio. If the aspect ratio is forced to change, some of the flowing energy will reflect in order to assure that its total aspect ratio remains constant. Crudely, the aspect ratio is similar to the ratio of E to H, or the same as the ratio of ε to μ $(\sqrt{\varepsilon/\mu})$. The aspect ratio of energy current is much like the aspect ratio of space. While the aspect ratio of space can change, it fundamental velocity $c=1/\sqrt{\mu\varepsilon}$ cannot really change. This parameter becomes merely our way of conceptualizing time delay when energy resides in a region of space.



A /B = Aspect Ratio

Uniform space has only two parameters:

1) aspect ratio
2) time delay.

Aspect ratio defines the shape of energy entering a given region of space, but not its amplitude. Velocity or length define the time during which the properly shaped energy can be accommodated by a region of space. Aspect ratio is really a definition of the relative compatibility of adjacent regions of space. Does flowing energy current largely travel unimpeded through an interface, or does it largely reflect at the interface? Space has quiet zones through which energy glides virtually unreflected. There are also noisy zones where energy current becomes incoherent, bounces about and splits apart. Noisy zones in space have either rapidly changing geometry or rapidly changing impedance ($\sqrt{\mu/\varepsilon}$).

Electromagnetic Energy

The rate of flow of energy through a surface can be calculated as a function of E and H. Specifically this flow is equivalent to E**.**H per unit area. This energy flows at the speed of light through a medium where $c=1/\sqrt{\mu\varepsilon}$. E and H are in quadrature and are normal to the direction of the energy flow. The energy density is therefore: E**.**H/c. If two signals of equal magnitude (assume E/2 & H/2) are travelling through each other in opposite directions the energy density is calculated as follows:

$$\frac{\frac{E}{2}.\frac{H}{2}}{c}\cdot 2 = \frac{EH}{2c}$$

If the directions of the two signals are such that opposite H-fields cancel and E-fields add, an apparently steady E-field will be created. The energy density of the fields remain as calculated above, but the value of the E-field will double from E/2 to E. It is a simple matter using the equations $E/H = \sqrt{\mu\varepsilon}$ and $c=1/\sqrt{\mu\varepsilon}$ for a team wave to get rid of H and c and so convert the first equation into the well known equation for energy density in the so-called electrostatic field:

$$e = \frac{1}{2}\,\varepsilon\,E^2 \quad \text{or} \quad \frac{1}{2}DE$$

Similarly, if two signals flow through each other in such a way as to give the appearance of a steady magnetic field as a result of their E-field canceling it is easily shown using the above equations to cancel out H and c so that:

$$e = \frac{1}{2}\,\mu H^2 \quad \text{OR} \quad \frac{1}{2}BH$$

Modern physics is based upon the faulty assumption that electromagnetics contains two kinds of energy: electric and magnetic. This assumption leads to a Baroque view of physical reality. Under that view energy seems to be associated with the square of the field intensity rather than a more reasonable view that it is linearly proportional to field intensity. It is worth remembering that neither Einstein nor most modern physicists were or are familiar with the concept of energy currents described herein. However, their work still survives by ignoring the energy current concept, scalar electromagnetics, the works of T. E. Bearden, Kaluza-Klein, and others who dispute Heaviside's interpretations of Maxwell's equations.

The Fallacy of Displacement Current

Conventional electromagnetic theory proposes that when an electric current flows down a wire into a capacitor it spreads out across the plate, producing an electric charge on the plate which in turn leads to an electric field between the capacitor plates. The valuable concept of continuity is then retained by postulating "after Maxwell" a displacement current. This current is a manipulation of the electric field (E) between the capacitor plates which has the dimensions of electric current and completes the flow of electricity in the circuit. This approach permits us to retain Kirchoff's laws and other valuable concepts even though superficially it appears that at the capacitor there is a break in the continuous flow of electric current. The flaw in this model appears when we notice that the current entered the capacitor at only one point on the capacitor plate. We then are left with the major difficulty of explaining how the electric charge flowing down the wire suddenly distributes itself uniformly across the entire capacitor plate, at a velocity in excess of the speed of light. This paradoxical situation is created by a flaw in the basic model. Work in high speed logic conducted by Ivor Catt has shown that the model of lumped capacitance is faulty and displacement current is an artifact of the faulty model. Since any capacitor behaves similarly to a transmission line it is no more necessary to postulate a displacement current for the capacitor than it is necessary to do so for a transmission line. The excision of "displacement current" from electromagnetic theory has been based on arguments which are independent of the classic dispute over whether the electric current causes the electromagnetic field, or vice versa.

The Motional E-Field

Of all the known fields --- electric, magnetic, gravitational and motional E-field --- the only ones incapable of being shielded are the induced motional E-field and the gravitational field. The nature of the motionally induced electric field is quite unique; in order understand it more fully we must start by parting with a few misleading paradigms. When magnetic flux is moved perpendicularly across a conductor an electromotive force (emf) is electromagnetically induced "within" the conductor. "Within" is an artifact of the commonly used analogy comparing the flow of electric current within a wire to the flow of water within a pipe. This is a most misleading model theoretically. The true phenomenon taking place has little been thought of as involving the production of a spatially distributed electric field. We can see that the model's origins likely arose from the operation called "flux cutting", a most deceiving and misleading term. A better term, "time varying flux modulation", does not imply any separation of lines of flux. Truly, lines of flux are always in closure upon themselves and are mathematically expressed as line integrals. It is fallacious to use the term "cutting", which implies time varying separation which does not in fact ever occur. A motionally induced E-field is actually created within the space occupied by the moving magnetic flux described above. This field is present therein, whether or not a conductor is present in the space. In terms of a definition we can say that, when magnetic flux of vector intensity $\overline{\boldsymbol{B}}$ moved across a region of space with vector velocity $\overline{\boldsymbol{V}}$, electromagnetically induced electric field vector BxV appears in the space at right angles to both $\overline{\boldsymbol{B}}$ and $\overline{\boldsymbol{V}}$. Therefore,

$$\boldsymbol{E} = \overline{\boldsymbol{B}} \ X \ \overline{V} \qquad (1)$$

It is this field that is related to gravity, it is virtually unshieldable. This field may be called the Motional E-field. According to T.E. Bearden, "It seems that the charged particles in the atom (electrons and protons) act like tiny magnets. Their motion in the space surrounding the atom would create this motional E-field". The field created by both the positive and negative charges would cancel to some degree, but due to the high orbital velocity of the negative electron relative to that of the positive proton the induced field of the electron should dominate the resulting field. The field produced as a result of these charges would vary proportionally to the inverse square of distance similar to gravity. The field produced by the translational motion of the charges would vary inversely as the cube of distance. This concept totally unites the electromagnetic and gravitational field theories and accounts for the strong and weak forces within the atom.

Field Super-Position & The Vacuum Triode

Electromagnetic induction with no measurable magnetic field is not new. It is well known that in the space surrounding a properly wound toroidal coil there is no magnetic field. This is due to the superposition of the fields. However, when alternating current is surging through a transformer an electric field surrounds it. When we apply the principle of superposition to the vacuum triode it becomes more obvious how the device is in fact operating.

The principle of superposition states that "In order to calculate the resultant intensity of superimposed fields, each field must be dealt with individually as though the other were not present". The resultant is obtained by vector addition of each field considered singularly. Consider for a moment the construction of the triode which includes the bifilar coils located within the fields of the two conditioned magnets. When the current in one half of the conductors in the coils (i.e., one of the bifilar elements in each coil) of the device is moving up, both the current and the magnetic field follow the right-hand rule. The resultant motional E-field would be vertical to both and inwardly directed. At the same time the current in the other half of the conductors in the coils is moving down and both the current and magnetic field follow the right-hand rule. The resulting motion E-field is again vertical to both and inwardly directed. Thus, the resultant field intensity is double the intensity attributable to either one of the set of coil conductors taken singularly. Expressed mathematically;

where:

$$E = (\bar{\boldsymbol{B}} \times \bar{V}) \cdot (-\bar{\boldsymbol{B}} \times -\bar{V}) = 2\,(\bar{\boldsymbol{B}} \times \bar{V})$$

$\boldsymbol{E}$ = electric field intensity
$\bar{\boldsymbol{B}}$ = magnetic field intensity
$\bar{V}$ = electron drift velocity (2)

The first term $(\bar{\boldsymbol{B}} \times \bar{V})$ in the equation represents the flow of the magnetic field when the electrons are moving in one direction, while the second term $(-\bar{\boldsymbol{B}} \times -\bar{V})$ defines the flow of the magnetic field when the electrons are moving in the other direction. These measurements indicate that field intensity is directly proportional to the square of the current required by the load placed on the device. This is due to its proportional relationship with the virtual value of the magnetic field which theory states is proportional to the current. Electrometer readings were always close to parabolic, thus indicating that the source was of infinite capacity. It was further determined through experiment that the magnetic field does not change with temperature. Also, there is no reason yet identified which would lead one to believe that electron drift velocity changes. It has been found remarkable that the vacuum triode runs approximately 20°F below ambient.

Induced Electromotive Force: Positive Energy

When an emf. is impressed on a closed metallic circuit, current results. The emf along a closed path C in space is defined as the work per unit charge (W/Q) done by the electromagnetic fields on a small test charge moved along path C. Since work is the line integral of force (F), the work per unit charge is the line integral of force per unit charge. Letting F/Q denote the vector electromagnetic force per unit charge (in newtons per coulomb) we have

$$\text{e.m.f.} = \int_C \left(\frac{F}{Q}\right) \cdot dtdl \text{ volts} \qquad (3)$$

The scalar product (F/Q) dtdl is the product of (F/Q) * cos θdl with θ denoting the angle between vectors F/Q and dl.

The electric force per unit charge is the electric field intensity (E) in volts/meter. The magnetic force per unit charge is V x B where V denotes the velocity of the test charge in meters per second and B denotes the magnetic flux density in webers/M^2. In terms of the smaller angle θ between V and B, the cross product of V and B is a vector having the magnitude VB sinθ. The direction of vector VxB is normal to the plane which contains vectors V and B in accordance with the right-hand rule (i.e., VxB is in the direction of the thumb while the fingers curl through the angle θ from V toward B). Since the total force per unit charge is E + VB the total emf in terms of the fields is:

$$\text{e.m.f.} = \int_C (E + V \times \mathbf{B})\ dtdl \qquad (4)$$

It appears from eq. (4) that the emf depends on the forward velocity with which the test charge is moved along the path C. This, however, is not the case. If V and dl in eq. (4) have the same direction then their associated scalar product is zero. Thus, only the component of V which is not in-line with dl (i.e. $\theta = 0$) can contribute to the emf.. This component has value only if the differential path length dl has a sideways motion. Thus, V in eq. (4) represents the sideways motion, if any, of dl. The fields E and B in eq.(4) could well be represented as functions of time as well as functions of the space coordinates. In addition, the velocity V of each differential path length dl may vary with time. However, eq. (4) correctly expresses the emf or voltage drop along path C as a function of time. That component of the emf consisting of the line integral V x B is the motional E-field since it has value ony when path C is moving through a magnetic field, traversing lines of magnetic flux. For stationary paths there is no motional E-field and the voltage drop is simply the integral of the electric field E. Emfs are generated by devices that separate charge. A familiar example is the battery which utilizes chemical forces to separate charge. Other examples include the heating of a thermocouple, exposure of a photovoltaic cell to incident light, or the rubbing together of different materials (electrostatic charge separation). Electric fields are also produced by time varying magnetic fields. This principle is extensively exploited to produce conventional electric power in the utility industry.

The line integral of electric field intensity E around any closed path C equals -dΦ/dt, with Φ representing the magnetic flux over any surface S having the closed path C as its contour. The positive side of the surface S and the direction of the line integral around contour C are related by the right-hand rule (the curled fingers are oriented so as to point around the loop in the direction of the integration and the extended thumb points out the positive side of the surface S.) The magnetic flux Φ is the surface integral of magnetic flux density B as shown below:

$$\Phi = \iint_S \boldsymbol{B} \cdot ds \quad \text{webers} \tag{5}$$

In eq. (5) the vector differential surface ds has an area of ds and is directionally normal to the plane of ds out of the positive side. The partial time derivative of Φ is defined as:

$$\frac{\partial \Phi}{\partial t} = \iint_S \frac{\partial b}{\partial t} \cdot ds \quad \text{volts} \tag{6}$$

This is referred to as the magnetic current through surface S. For moving surface S the limits of the surface integral in eq. (6) are functions of time but the equation is still applicable. It is important to clarify at this point that when we evaluate the value of dΦ/dt over a surface that is moving in the proximity of magnetic field activity we treat the surface for the instant under consideration as though it were stationary. The partial time derivative of Φis the time rate of change of flux through surface S due only to a changing magnetic field density B. Any increase of Φdue to the motion of the surface in the B-field is not included in that calculation.

Continuing this discussion leads us to note that an electric field must be present in any region containing a time varying magnetic field. This is shown by eq. (7) displayed below:

$$\oint_C \boldsymbol{E} \cdot d\boldsymbol{l} = \frac{-\partial \Phi}{\partial t} \tag{7}$$

In this equation Φ is the magnetic flux in webers out of the positive side of any surface having path C as its contour. Combining eq. (7) above with eq. (4) we are able to calculate the emf about a closed path C. This is shown below:

$$\text{e.m.f.} = \oint_C \boldsymbol{E} \cdot d\boldsymbol{l} + (\boldsymbol{V} \times \boldsymbol{B})\, d\boldsymbol{l} \tag{8}$$

and in another form

$$\text{e.m.f.} = \frac{-\partial \Phi}{\partial t} = \oint_C (\boldsymbol{V} \times \boldsymbol{B})\, d\boldsymbol{l} \tag{9}$$

Thus, the emf around a closed path consists in general of two components. The component dΦ/dt is the variational emf and the second component is the motional E-field. In eq.(9) (V x B)dl can be means of a vector identity be replaced with B*(V x dl)A. V is the sideways velocity of dl, the vector Vxdl has magnitude Vdl and a direction normal to the surface ds swept out by moving length dl in time d. Letting B_n denote the component of B normal to this area we can see that -B*(v x dl) becomes $-B_nVdl$ and eq.(9) can be rewritten as:

$$\text{e.m.f.} = \frac{-\partial\Phi}{\partial d} + \oint_C B_n V\,dl \qquad (10)$$

Clearly, the integral of B_nV around the closed contour C with sideways velocity of magnitude V for each length dl traversed is simply the time rate of change of the magnetic flux through the surface bounded by C. This change is due directly to the passage of path C through lines of magnetic flux. Hence, the complete expression of emf above in eq.(10) is the time rate of change of the magnetic flux over any surface S bounded by the closed path C, due to the changing magnetic field and the movement of the path through the magnetic field. eq.(10) may be written:

$$\text{e.m.f.} = -d\Phi/dt \qquad (11)$$

Note: The only difference between eq.(7) and eq.(11) is that eq.(7) contains only the variational emf while eq.(11) is the sum of the variational and motional emf's. In eq.(7) the partial time derivative of magnetic flux Φ is the rate of flux change due only to the time varying magnetic field while eq.(11) includes the total time derivative of the rate of flux change due to the time varying magnetic field and path C's passage through the magnetic field. If the closed path C is not passing through lines of magnetic flux then eq.(7) and eq.(11) are equivalent.

It is also important to point out that $d\Phi/dt$ in eq.(11) does not necessarily mean the total time rate of change of the flux Φ over the surface S. For example, the flux over surface S is bounded by the closed contour C of the left portion of the electric circuit shown in Figure 1. The flux is changing as the coil is unwound by the rotation of the cylinder as illustrated. However, since B is static there is no variational emf and since the conductors are not modulating lines of flux there

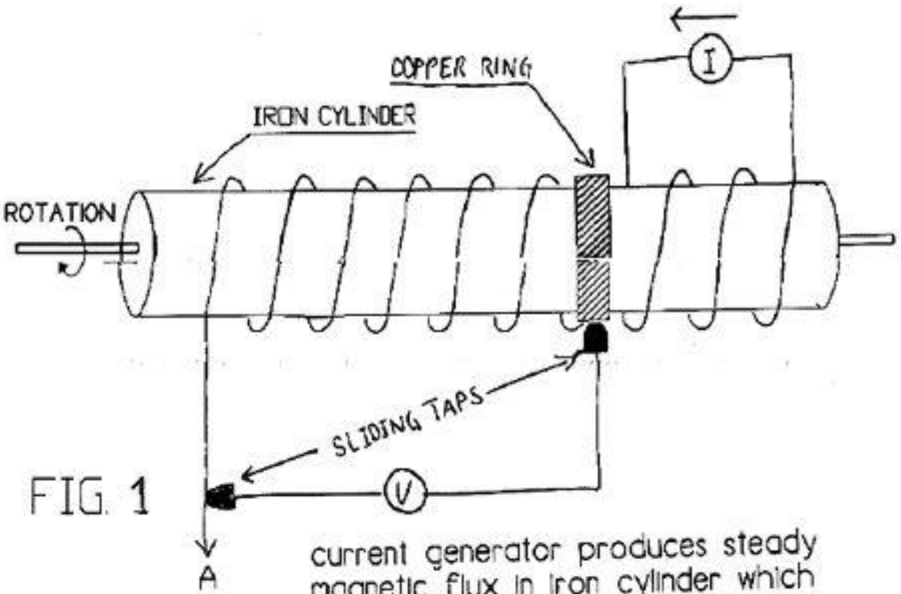


FIG. 1

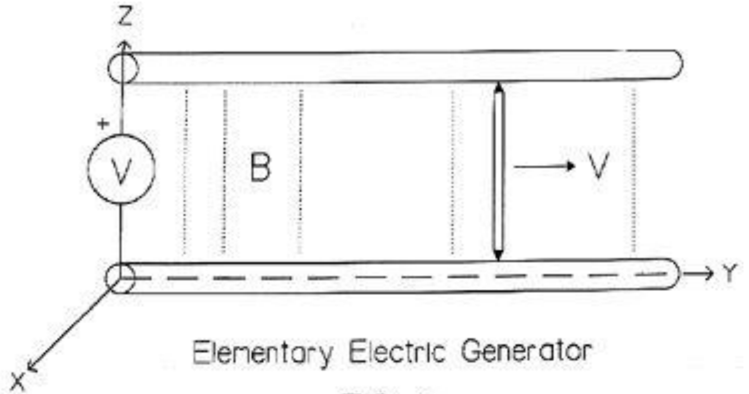
current generator produces steady magnetic flux in iron cylinder which rotates as wire is pulled at 'A'.

is no motional emf. Thus, dΦ/dt in eq.(11) is zero even the flux is changing with time. Note that dΦ/dt was defined as representing the right hand part of the expression in e.(10) and dΦ/dt must not be more broadly interpreted.

In the application of the presented equations it is required that one refer all flux densities and movements to a single specified coordinate system. In particular, the velocities will all be with respect to this system alone and not interpreted as relative velocities between conductors or moving lines of flux. The coordinate system is arbitrarily selected and the magnitudes of variational and motional fields depend upon the selection.

Example #1

A fundamental electric generator is shown in Figure 2. The parallel stationary conductors separated by distance l have a moving conductor connected to across them.



Elementary Electric Generator

FIG. 2

The circuit is completed by a moving conductor connected to the parallel conductors by means of two sliding taps. This conductor is located at y = 0 when time t = 0, and moves to the right at a constant velocity V = Vay. The applied flux B is represented by dots on Figure 2 and has a magnitude that equals B = B_o cosB_y cos wt ax. The unit vectors in the directions of the respective coordinate axes are ax, ay, and az.

Solution: Let S denote the plane rectangular surface bounded by the closed electric circuit, with a positive side selected as the side facing the reader. The counterclockwise emf around the circuit is dΦ/dt with Φ signifying the magnetic flux out of the positive side of S (As ds = 1 dy ax). The scalar product B*ds is B_o l cos B_y, cosωt dy; integrating from y = 0 to y = y gives:

$$\Phi = B_o l \sin By_1 \cos \omega t \qquad (12)$$

with y_1 denoting the instantaneous y position of the moving wire. The counterclockwise emf is found by replacing y with vt and evaluating dΦ/dt. The result is

$$\text{e.m.f.} = \omega B_o l/B \sin Bvt \sin \omega t - B_0 lv \cos Bvt \cos \omega t \qquad (13)$$

The variational (transformer) component is $-\partial\Phi/\partial t$ which is determined with aid of eq.(12) to be $wB_o l/B\ sinBy\ \sin\omega t$ where y = vt. This is the first component on the right side of eq.(13).

Note: y_1 was treated as a constant when evaluating the partial time derivative of Φ.

The motional E-field is the line integral of V x B along the path of the moving conductor. As V x B is $-B_o, v\cos By_1\ \cos\omega t\ ax$ and As dl is dz ax evaluation of the integral of $-B_o v\cos Bv_1 \cos\omega t\, dz$ from Z = 0 to Z = 1 results in a motional E-field of $-B_o\ lv\cos Bv_1\ \cos wt.$

This component results from modulation of the lines of flux by the moving conductor. If the voltmeter draws no current, there can be no electromagnetic force on the free electrons of the wire. Therefore, the emf along the path of the metal conductors including the moving conductor is zero.

Example #2

Suppose the conductor with the sliding taps is stationary (V = 0) and it is located at $y = y_1$. Also suppose the magnetic field B is produced by a system of moving conductors not shown in Figure 2 which are travelling with a constant velocity V = Vay . At time t = 0 the magnetic field B is Bo sinBy ax. Determine the voltage across the voltmeter.

Solution: There is no motional E-field because the conductors in Figure 2 are at rest (stationary) with respect to our selected coordinate system. However, the magnetic field at points fixed with respect to the coordinate system is changing with time and as a result there is a variational e.m.f. Since the B-field at t = 0 is B 0 sinBy ax and has a velocity of V = Vay it can be calculated that the B-field as a function of time is B_o sin [B(y-vt)] ax. This is verified by noting that an observer located at y at time t = 0 who is travelling at the constant velocity (V = Vay) of the moving current would have a y coordinate of y = y + Vt and an accordingly different expression for B. He would observe a constant field where the magnetic current density is:

$$\partial B/\partial t = -B_u B_o \cos B(y-V_t)\ ax$$

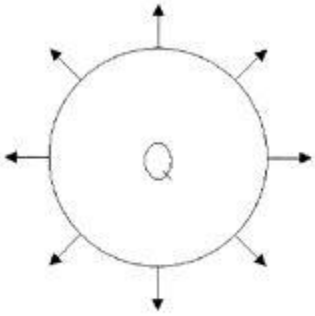
The counterclockwise emf can be arrived at by taking the negative of an integral of the above expression for the rectangular surface bounded by the electric circuit with the positive side facing the reader with the limits of zero and y. The resulting emf equals:

$$B_0 lv\ \ [\sin B(y_1 - Vt) + \sin Bvt]$$

which is the voltage across the meter.

Induced Motional Field: Negative Energy

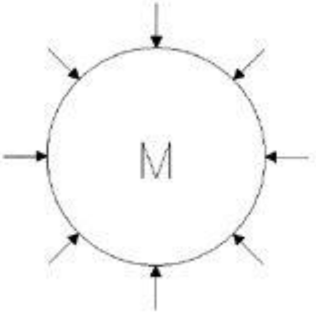
Conventional theory says that electric fields and magnetic fields are different things. Consider for a moment a charge with an electric field around it. If the charge is moved a magnetic field develops and the moving charge constitutes a current. If an observer were to move along with the charge, he would see no relative motion, no current, and no magnetic field. A stationary observer would see motion, current and a magnetic field. It would appear that a magnetic field is an electric field observed from a motional reference frame. Similarly, if we take a mass with a gravity field around it and we move the mass and create a mass current, a new field is also created. It is a different kind of gravity field with no source and no sink. It is called the Protational field also known as the "Lense-Thirring Effect". This field an its governing principles will form the basis for future anti-gravity devices.



ELECTRIC FIELD

$\mathcal{E} = Q/R^2$

ILLUS #1



GRAVITATIONAL FIELD

$g = GM/R^2$

ILLUS #2

Within the confined area of the Vacuum Triode box, the spacetime continuum is reversed by the fields that are produced in the presence of excited coherent space flux quanta. These quanta have been attracted from and ultimately extracted from the virtual vacuum, the infinitely non-exhaustible Dirac Sea. For a more detailed mathematical format see Appendix A, a paper on "The Phase Conjugate Vacuum Triode" by T.E. Bearden, April 23, 1987. Much of the theory which likely applies to the vacuum triode has been developed in the field of phase conjugate optics.

With regards to over-unity phenomena it is important to note that so long as positive energy is present in a positive/flowing time regime unity and over-unity power gains are not possible. The summation of the losses due to resistance, impedance, friction, magnetic hysteresis and eddy currents and windage losses of rotating machinery will always reduce overall efficiency below unity for a closed system. The laws of conservation of energy always apply to all systems. However, the induced motional E-field changes the system upon which those laws need be applied. Since the vacuum triode operates in dimensions more than four and provides a line between the multi-dimensional reality of the quantum state and a link between Dirac Sea we are now dealing with an open-ended system, not the closed system within which all conservation and thermodynamic laws were developed. To achieve unity, the summation of all magnetic and ohmic losses must equal zero. To achieve this state negative energy and resistance moves to zero and all energy flows along the outside of conductors in the form of a special space field. Negative energy is fully capable of lighting incandescent lights, running motors, and performing all of the functions of positive energy tested to date. When run in parallel with positive energy however, cancellation (annihilation) of opposing power types occurs. This has been fully tested in the laboratory.

Once unity has been achieved and the gate to the Dirac Sea opened, over-unity is affected by loading the open gate more and more which opens it further to the point where direct communication/interaction with the nucleus of the atom itself is achieved. Output of the vacuum triode is not proportional to the excitation input as the output produced by the device is directly proportional to the load which is placed upon it. That load is the only dependent variable for device output. The triode's output voltage and frequency always remains constant due to the conditioning of the motional E-field in the permanent magnets and the small regulated excitation signal which is provided through a small oscillator. Regulation remains constant, output locks into an in-phase condition (cosθ = 1 Kvar = 1) under all load characteristics.

The vacuum triode is a solid state device consisting of conditioned permanent magnets capable of producing a motional field. This field opens the gate to the Dirac Sea where negative energy is able to flow from an into the triode's receiving coils. The coils are very small diameter copper wire but are capable of producing in excess of 5 kilowatts of useful power; this in itself is a clear indicator that the type of electrical energy provided by the device is not conventional. The wire sizes employed by the device would not be capable of carrying such large currents without excessive heat gain, however, the triode's coils actually run cooler when loaded at 5 kW.

The fundamental magnets have been broken free of their binding forces which constrained them to be steadystate single pole uniform magnetic flux devices. They are now able to simply support mass, as demonstrated with the transformer steel illustration. They can now easily be made to adopt a dynamic motional field by applying a tiny amount of excitation. Specifically, 10V @ 1 mA (10 mW) of excitation at 60 Hz. will enable the coils of the triode to receive from the Dirac Sea in excess of 5000 watts of usable negative energy; how much more can safely be removed has not yet been determined.

***Proc. 26th Intersociety Energy Conversion Engineering Conference* (August 4-9, 1991, Boston, MA):**

Utilizing Scalar Electromagnetics to Tap Vacuum Energy

by
Floyd Sweet
(Association of Distinguished American Scientists)

Thomas E. Bearden
(Association of Distinguished American Scientists)

Abstract

Based on E.T. Whittaker's previously unnoticed 1903-1904 papers which established a hidden bidirectional EM wave structure in a standing forcefield free scalar potential, a method of

directly engineering the ambient potential of the vacuum has been developed and realized experimentally.

Adding Whittaker's engineerable hidden variable theory to classical electromagnetics, quantum mechanics, and general relativity produces supersets of each discipline. These supersets are joined by the common Whittaker subset, producing a unified field theory that is engineerable and tested.

By treating the nucleus of the atom as a pumped phase conjugate mirror, several working model energy units have been produced which excite and organize the local vacuum, increase the local virtual photon flux between local vacuum and nucleus, establish coherent self-oscillations between the local excited vacuum and the affected nuclei, utilize the self-oscillating standing wave for self-pumping of the nuclei/mirrors, introduce a very tiny signal wave to the mirrors, and output into an external load circuit a powerful, amplified, time-reversed phase conjugate replica wave at 60 Hertz frequency and nominal 120 volt sine wave power.

Several models have been built, ranging from 6 watts early on to one of 5 kilowatts. Both closed batteryless systems with damped positive feedback and open loop systems with battery-powered input have been successfully built. Open loop power gains of from 5 x 104 to 1.5 x 106 have been achieved.

Antigravity experiments have also been successfully conducted where the weight of the unit was reduced by 90% in controlled experiments, with a signal wave input of 175 microwatts and an output of 1 kilowatt.

The basic theory of the device is briefly explained and experimental results presented. In the demonstration session, a videotape of one operating open-loop unit with a 1.5 x 106 power gain is planned, as is the demonstration of an actual working model closed-loop system with a nominal rating of 500 watts, and without external power input of any kind.

The units are solid state, with no moving parts. Each of them comprises a unique form of self-powered vacuum triode of extraordinary gain, where the cathode power and plate power are freely furnished by the vacuum, and only a small grid signal need be furnished either from an external power source or by clamped positive feedback from the device's output. The output is negative energy, and some of its unique characteristics are pointed out.

Implications of the experimental application of the Sweet vacuum triode, the Bearden approach to the nucleus as a pumped phase conjugate mirror, and the unified field theory based on Whittaker's engineerable hidden variable scalar EM potential theory, are also briefly addressed.

Note: This paper has been prepared by Bearden, the second author listed, hereinafter called "the author", with full concurrence of the inventor of the vacuum triode, inventor and magnetics engineer Sweet, the first author listed.

Scalar Electromagnetics

In 1837 Sir W.R. Hamilton said, "The notion of time may be unfolded into an independent pure science... a science of pure time is possible."

As is well known, the fundamental units utilized in physics are arbitrary. It is even possible to construct all of physics on a single unit, time. This oddity shows the truth in Hamilton's statement; it is even more odd, because quantum mechanically time is not an observable. This means that the observable world can be modeled completely in terms of the nonobservable, which is essentially what modern quantum mechanics is now doing.

Hamilton viewed his magnificent quaternions as essentially having accomplished the mathematical structuring of time. Maxwell's original EM theory, as is well-known, was modeled in Hamilton's quaternions, not in the highly curtailed Heaviside/Hertz vectors erroneously taught today as "Maxwell's theory."

Not a single one of the present so-called "Maxwell's" vector equations ever appeared in a book or paper by James Clerk Maxwell.

For some years the author has worked on an extended electromagnetics theory, involving the scalar component of the quaternion. [ref. 1]

In Maxwell's original quaternion theory, this scalar component often remains when the directional components zero. Further, it then enfolds vectors and functions of vectors inside, in a hidden variable manner. Specifically, the author has patterned a unified field theory concept upon the previously unnoticed but remarkable early work of E.T. Whittaker. [ref. 2]

In two fundamental papers in 1903 and 1904, Whittaker showed that all present vector EM can be replaced by scalar potential interferometry, and that bidirectional harmonic EM plane wave sets could be used to produce a standing wave of force-field-free potential (Figures 1 and 2).

```
 | phi(x)
 | Potential
|      +  +
 |       +         +  <---- Organized Local Space-Time
 |     +              +         Curvature
 |    +      EM        +
 |  +  Substructure     +
 | +                    +
 |+                      +
 |+___________________________________+_______________________________+__
                         +                  +
      X -->               +        EM        +
                           +   Substructure  +
                            +              +
                              +          +
                                +      +
                                  +  +
```

Figure 1: Cross-section of Whittaker spherical EM potential wave.

Thus Whittaker anticipated the quantum mechanical Aharonov/Bohm effect by 55 years, including extending it to the macroscopic world instead of the mesoscopic realm where it has been established to date. [ref. 3]

In modern terms, Whittaker showed how to turn EM wave energy into electrogravitational potential energy, then how to interfere two such scalar potential waves to recover electromagnetic energy, even at a distance. [ref. 4]

This unrecognized work is of great importance: when applied to modern physics, it produces supersets of quantum mechanics (QM), classical electromagnetics (EM), and general relativity (GR).

Further, all three extended disciplines unify on their common Whittaker subset, in a testable and engineerable fashion. [ref. 5]

[This figure could not be effectively depicted in ASCII. See the original paper]
Figure 2: Infolded EM plane wave structure of a Whittaker wave.

The Nucleus as a PPCM and Triode

The author has also considered the highly nonlinear nucleus of the atom as a pumped phase conjugate mirror (PPCM), having found no other consideration of same in the literature.

The author also dubbed a PPCM a "triode," since the amplified phase conjugate replica of the signal wave is much like the amplified output of a triode, and the signal wave input to a PPCM is much like a triode's grid signal input. The PPCM pump wave then corresponds roughly to the power input to the cathode and plate of a triode. [ref. 6]

Figure 3 diagrammatically shows the PPCM with correspondence to a triode. [Referring to figure 3]

Up to all the power in the pump waves A1 and A2 may be output in phase conjugate replica wave A3 in response to a small signal wave input A1.

[This figure could not be effectively depicted in ASCII. See the original paper]
Figure 3: A pumped phase conjugate mirror.

Vacuum Triode background

About seven years ago, the author was privileged to see and examine an invention of Mr. Floyd Sweet, that produced about 6 watts of electrical power from the vacuum itself.

This remarkable device, which the author dubbed a vacuum triode, in a single unit utilized most of the scalar EM concepts the author had so painfully and slowly formulated over the years.

Sweet, a brilliant inventor with a remarkable knowledge of magnetics, had utilized barium ferrite magnets and special coils to produce a solid-state device that successfully tapped the vacuum energy.

The author quickly put together a theoretical concept for the energy-tapping mechanism, based on treatment of the nucleus as a PPCM and Whittaker's scalar EM potential unified field theory. [ref. 7]

The author furnished the technical concept, treating the nucleus as a pumped phase conjugate mirror, to the inventor along with copies of Whittaker's papers.

Sweet's Synthesis and Extension

Sweet is also a brilliant EM theoretician, working in four, five, or even six dimensions with ease. He immediately synthesized the entire PPCM and Whittaker theory, and developed a complete theoretical treatment of the device. [ref. 8]

He also increased the nuclear potential utilized in the activated nuclei of the device, which increased the pumping energy and hence the energy output. He next produced an open-loop vacuum triode (VT) with an output of 500 watts, for an input of 33 microwatts.

Thereafter he produced several other models, including closed-loop systems and one with 5-KW output.

Purpose of This Paper

Our purpose is to explain the detailed scalar EM concept of the operation of the vacuum triode, since it is a universal method for cohering and tapping useful EM energy from the vacuum.

The author believes that this mechanism is the fundamental mechanism that must be invoked in any over-unity device that electromagnetically extracts vacuum energy as electromagnetic effects.

We also intend to demonstrate a full working model of the device at this conference. Sweet's detailed theoretical treatment will be completed and submitted to a major journal shortly, to complete the scientific exposition of the new methodology.

I must also express my deep admiration for my brilliant inventor colleague. It has been a privilege to work with him, though under great difficulties and at a distance. He has developed several other related devices that are of great importance to the emerging new physics of vacuum engineering, in the sense referred to by Lee. [ref. 9]

To mention just one, he has produced a magnetic lens which apparently can directly display the vacuum's virtual particle flux, or a good analog of it. So far as I am aware, this is the only extant instrument today that can perform this feat.

When the vacuum triode has been proven to the scientific community, it is my intention to nominate Sweet for the Nobel Prize he so richly deserves, and seek high scientific endorsements for the recommendation.

Entropy

As is well known, in any closed dynamic system the order existing in it will gradually be dissipated, as more and more interactions occur. This leads to the notion of entropy as the increasing disorder in such systems. The assumptions are

(1) a closed system, and
(2) a positive flow of time for the components of the system.

Actually no such thing as a completely closed system exists in nature. Every mass system is open to virtual particle flux exchange with the vacuum, for example, particularly in the nucleus of its atoms, where the bulk of its mass is located.

However, the closed system assumption is reasonably approximated by a great many systems which are in stable thermodynamic equilibrium, or nearly so.

On the other hand, in an open system far from thermodynamic equilibrium, the second law of thermodynamics does not necessarily apply, because the system violates both the closed system assumption and its equilibrium approximation. [ref.10]

Time Reversal

Since being discovered in 1972 in the open Soviet literature, the time-reversed (phase conjugate) EM wave has also been known. The phase conjugate EM wave is truly time-reversed, as has been shown experimentally. Since the time-reversed EM wave violates the second major assumption, the second law of thermodynamics need not necessarily hold for time-reversed entities.

Putting all this together, if one wishes negentropy and hence increased energy in a system, the candidate suggested would appear to be a system that was strongly

(1) open loop,
(2) time-reversed, and
(3) far from thermodynamic equilibrium.

A good overview of time-reversal in physics has been provided by Sachs. [ref. 11]

Engineering the Nucleus

Since the nucleus already provides a myriad of time-reversed processes, engineering the nucleus of an atom is a very good candidate for practical negentropy.

To engineer the nucleus directly, a Whittaker potential is first artificially constructed, by composing a harmonic set of phase-locked EM wave/antiwave pairs. It is accented that the antiwaves must be true phase conjugates; otherwise they will not constitute a gradient-free Whittaker standing potential wave.

In addition, at least one harmonic interval must be used, and additional harmonic sets are most desirable. The reason is that a space-time lattice must be formed in the vacuum, where the energy is additive spatially but oppositive in t-dot, the rate of flow of time, in the fourth dimension.

So a time-structure is required as well as a spatial structure, which is what is provided by *n* bidirectional harmonic Whittaker EM wave sets, where *n* is an integer greater than 1.

Once a specific Whittaker structure has been chosen, the local lattice of space-time is established. This establishes phase-locked lattice groupings of coupled photon/antiphoton pairs, or of gravitons. In turn, this Whittaker-structured vacuum now contains specific graviton vacuum engines, which directly engineer and structure the vacuum's virtual particle flux (VPF) exchange with the nucleus. [ref.12]

The nucleus is highly nonlinear, hence strongly phase conjugative, or time-reversed. The ambient potential of the local vacuum surrounding the nucleus is in a violent virtual photon exchange with it, accounting for its electrical charge.

Since the preponderant charge is positive, from the viewpoint of the ordinary light observer whose light interacts with electron shells, the nucleus may be taken to exhibit time reversal (phase conjugation).

Energy, Time, and Gravitons

We take the definition of "energy" to be fundamentally an ordering imposed upon the VPF of vacuum. We take photon scattering from the electron shells of atoms to be the fundamental exterior mechanism producing forward flow of external observer time.

It then follows that "time's arrow" for the EM observer is due to the universal scattering of photons from electron shells.

In this view, forward (positive) time flow and entropy are due to the same primary action: photon scattering from electron shells. It is unfortunate that the concept of "positive" energy has been tied to, and defined in terms of, the scattering and dissipation of VPF order as work, or energy expended.

Via the standard labeling, then, negative energy is the reconstitution of order in the vacuum VPF. It should be noted that, in a PPCM, dissipative or external pump wave stress energy can be scavenged and re-emitted in perfect order as the phase conjugate replica. This is a negentropic process, for it is capable of turning disorder into order. [ref. 13]

In the time-reversed PPCM nucleus, we should expect to see appreciable negative energy, that is, energy removed from the EM scattering domain. This includes the binding energy of the nucleus, and the gravitational (G) potential energy of the EM energy removed from the "scattering interaction realm" and locked into the mass.

Following Sakharov, we hold that the G-field is not a fundamental field of nature, but a composite caused by, or made from, other fields. [ref. 14]

To the first order, we assume the G-potential is comprised of coupled photon/antiphoton pairs, on the average, where the statistical coupled spin-2 photon/antiphoton pair is a graviton. [ref. 15]

We follow the modern view of the field: because of vacuum fluctuations, rigorously one no longer speaks of "the" field, but of the probability of a particular field configuration. [ref. 16]

We also hold the vacuum to be composed of potentials, and regard the three terms space-time, vacuum, and scalar potential as essentially synonymous.

Newton's Third Law and the Detection Process

The VPF EM stress of the local vacuum immediately surrounding the nucleus may be decomposed a la Whittaker into opposing bidirectional EM plane waves/forces. Thus the nonlinear nucleus may be regarded as a pumped phase conjugate mirror, normally with a gain of one.

In this view, Newton's third law reaction force is generated because the so-called "photon" interaction with an atom is in fact a graviton reaction involving a photon/antiphoton pair that is decoupled.

The decoupled photon normally is absorbed and reradiated by an orbital electron, while the decoupled antiphoton interacts with the nucleus, producing a time-reversed twin of the external force, or, in other words, Newton's third law reaction force, which gives a slight recoil of the nucleus.

Half of every measurement physicists normally make is discarded, with the missing half accounting only for Newtonian reaction in the meter or instrument, which is usually ignored.

The fact that half of our measurement interactions are ignored is occasionally discovered and noted by physicists, who may even write a paper pointing it out, but no change is instituted in the foundations. [ref. 17 and 18]

Semiconducting Vacuum and Self-Oscillation

The vacuum immediately surrounding the nucleus is structured by the nucleus, and is itself nonlinear and capable of acting as a semiconductor. [ref. 19]

Since both this immediately local semiconductor vacuum and the nucleus it surrounds are highly nonlinear, then nonlinear resonance can conceivably be established between them.

Further, since the resonating system in such case is an open system away from thermodynamic equilibrium, the oscillation can be self-sustaining. Such self-oscillation of the pumping of a PCM is already well known in the nonlinear optical literature, particularly with compounds containing barium. [ref. 20]

The Vacuum Triode: The Basic Concept

As is well known, a stress can be decomposed into opposing sets of forces. But quantum mechanically, the forces we are interested in with our work here are all caused electromagnetically, by the exchange of virtual photons. Even mechanical force, according to QM, is caused in this manner. Thus opposing electromagnetic or mechanical "stress" sets of bidirectional EM forces are microscopically equivalent to the notion of pump waves in nonlinear optics.

Hence under the proper conditions, it follows that trapped EM stress energy of the vacuum can be utilized to "pump" the nucleus. Treating the stress-pumped nonlinear nucleus as a PPCM, it follows that the stress energy of the vacuum can be tapped by a 4-wave mixing mechanism in the atomic nucleus, to provide amplified phase conjugate EM wave outputs from the atom in response to small signal wave inputs. [21]

In the proper nonlinear material, the material may act as a PPCM, in which case there exists a suitable connection between the material's atomic nuclei and its external electromagnetic lattice bonds, and the amplified phase conjugate replica wave generated in the nucleus will be emitted from the material as an EM wave field. This field can then be tapped by suitable means and output to an external load circuit.

Block Diagram of the Vacuum Triode**:** Figure 4 shows a basic block diagram of the vacuum triode process, utilized by Sweet in several laboratory vacuum energy devices. These devices have ranged from a nominal 500 watt output in a 6 lb device to 5 kilo watts for a heavier unit. Gains have ranged from 50,000 to 1,500,000 for open-loop systems. Both open-loop and closed-loop systems have been built and tested.

Figure 4 shows a combined block diagram for either a closed-loop or open-loop system. In the open-loop system, a barium ferrite magnetic material is used as a pumped phase conjugate mirror.

In the "standard" design, two opposing PPCMs are used. The advantage of this dual combination is the use of self-targeting (repetitive phase conjugation, signal by signal). This has the effect of

(1) stabilizing the Whittaker field, and
(2) producing a quantum potential between the two mirrors, so the mirrors and the Whittaker potential between them are essentially one single space-time entity.

Discussion of a quantum potential is beyond the scope of this paper, but the technical mechanism for creating one has been previously presented by the author on several occasions. [ref. 22]

First we will explain the open-loop operation of the vacuum triode. In Figure 4, on the right an external 60 Hz, nominal 10 volt AC sine wave of several tens of microwatts in power is input into the stabilized field of the barium ferrite magnet structure, where it modulates the field, producing a signal wave input into the atoms of the material.

In the top right block, the EM signal wave interacts with the electron shell of an atom, which in turn is EM-coupled to the nucleus.

[This figure could not be effectively depicted in ASCII. See the original paper]
Figure 4: The Vacuum Triode Concept

Thus an EM signal wave is input to the nucleus of the atom, which is highly nonlinear (middle top block). Earlier, Sweet had specifically conditioned the atomic nuclei with a proprietary process, wherein in the barium nucleus a trapped 60 Hz scalar EM spherical wave resonance (self-oscillation) exists between the structured semiconductor vacuum immediately surrounding the Ba nucleus.

In the same activation process, the ambient potential of the surrounding vacuum was raised and stabilized, in the two leftmost blocks.

At this point the nonlinear nucleus is effectively self-pumped by the trapped, excited, spherical scalar wave oscillation between the structured semiconductor vacuum and the nucleus. The nucleus is now a strongly pumped phase conjugate mirror.

Consequently, when the signal wave input arrives, the PPCM nucleus emits an amplified phase conjugate replica (PCR) wave, which precisely backtracks the input signal wave. This precise backtracking (perfect retroreflection) is referred to as the "distortion correction theorem."

In short, the powerful PCR wave returns precisely toward the external source, passing through the electron shells and arriving in the perturbed barium ferrite magnet assembly field, where it perturbs the field.

A transformer-like system then extracts this magnetic field perturbation and conducts it to the external load circuit.

However, the PCR contains negative energy. Short of the load, the internal circuits run cool, rather than heating. This is a signature of a true vacuum energy-tapping device.

Indeed, if the output leads of the Sweet vacuum triode are physically shorted together, a brilliant flash occurs, and the leads instantly ice as if dipped in liquid oxygen. This is another signature of the true negentropic over-unity vacuum tap.

Note that the energy extracted from the semiconducting vacuum adjacent to the nucleus is just instantly replaced by the surrounding vacuum's inexhaustible energy pool. This is an open-loop system, with a hidden energy source: the intense virtual particle flux of the vacuum's ambient charge.

It is not possible to exhaust that flux, which is often calculated to have an energy density of some 10^100 or more grams per cm^3, if the energy were cohered and condensed into mass.

As can be seen, even a VT gain of 1.5×10^6 represents a "vacuum tap" of an incredibly small efficiency, on the order of 10^{-100} or so. However, the vacuum "river" is so energetic that such efficiencies are quite sufficient.

We accent that the barium ferrite magnetic material must be activated so that stable self-oscillation between the barium nucleus and the surrounding semiconductor vacuum exists. Although self-oscillating/self-pumped PCMs are known at optical frequencies, Sweet has discovered and perfected a brilliant methodology for activating PPCM nuclei at ELF frequencies.

In a resistive load such as light bulbs, the resistive material accomplishes repetitive phase conjugation. Thus in the resistor, half the total energy is expressed as photon or dissipative energy in the external (electron shell) level.

As the excited electrons decay, they emit scattered EM energy as light and heat. This is an exothermic interaction. The other half of the total energy reacts in the atomic nuclei, as a phase conjugative or endothermic interaction.

We strongly accent that, Whittaker-wise, there are two electromagnetic channels and two kinds of EM:

(1) external EM, the common electron-shell interacting, entropic, scattering, time-forward kind, and
(2) the internal, unsuspected, hidden variable, nuclei interacting, negentropic, reordering/convergent kind.

Internal EM travels strictly between atomic nuclei, normally not reacting with electron shells unless a pumped phase conjugate mirror reaction is invoked in the nucleus to produce a gain somewhat greater than unity.

Thus if we wish to communicate with atomic nuclei directly, and engineer them directly, we must utilize the internal EM channel via applied Whittaker methods.

Antigravity Tests

Inherent in the preceding discussions is the possibility to turn EM energy into gravitational energy of either sign. In other words, one should be able to utilize Sweet's vacuum triode to produce and demonstrate antigravity.

Indeed this is the case. Sweet has also discovered the special alterations necessary to perform straightforward transformation of the internal energy in the nucleus to antigravitational energy, producing a unilateral thrust upward.

Note that the bulk of G-potential gradient (G-force-field) occurs Whittaker-wise at ELF frequencies. This explains why nonlinear phase conjugate opticians do not notice direct antigravity effects.

At the optical frequencies at which they work, the effects are so miniscule that they are negligible. This is readily explained as follows: In QM, the quantum (photon) is comprised of action (angular momentum), not just energy. It is rather like a "piece of energy welded to a piece of time, with no seam in the middle."

Since quantum change occurs in quanta, the decoupling of the energy and time components, in the continual interaction of photons with matter, exchanges energy between G-potential of vacuum and trapped mass of the atom or particle. In this exchange, small increments of time are continually being formed (and unformed, as photon emission occurs).

Consequently, each mass is moving forward in time in small incremental jumps, usually of exceedingly small magnitude. However, the energy and time trapped in a photon are canonical. The greater the piece of energy, the smaller the piece of time, and vice versa.

So if one wishes to stress the "rate of flow of time" significantly, one needs to produce large amounts of photons that have very large pieces of time, and consequently little pieces of energy.

Since the energy of the photon is directly proportional to its frequency, this means that the lower frequency photons have larger time increments, and hence endure over many "regular-sized photon absorption/emission changes" to appreciably stress the rate of time flow/production.

The bottom line is that the standard pumped phase conjugate mirror can be adapted to produce antigravity at ELF frequencies, but precisely the same adaptation at optical frequencies will have negligible effect.

With this in mind, the author requested Sweet to perform an antigravity experiment to prove the thesis. With Sweet's proprietary adaptation of his vacuum triode/PPCM, the experiment produced rather straightforward but spectacular results, as shown in Figure 5.

The experiment was performed as follows: Rigged for antigravity, the 6-lb device was placed on a scale so that its weight could be continuously monitored. A special external load box was utilized in which multiple electric light sockets were connected in parallel.

Then the external load draw was adjusted by merely screwing in 100-watt lamps, one at a time, with measurement and observation pauses in between. The output of the device was 120 volt, negative AC sine-wave power at 60 Hz.

For each 100-watt increment, the load power was recorded and the weight was carefully recorded. The results are shown in the rather smooth, classic curve shown in Figure 5.

At 1,000 watts load draw, the previously 6-lb device had reduced its weight due to gravity by 90 percent. At that point the signal-wave (grid) input to the open-loop vacuum triode was only 175.4 microamps at 10 volts, or just under two milliwatts.

[This figure could not be effectively depicted in ASCII. See the original paper]
Figure 5: Antigravity Test of Sweet's Adapted Vacuum Triode.

We accent that the nominal two milliwatt input is only a gating signal. It is the organized, gated vacuum energy that is performing the action.

The experiment was stopped short of actual hovering and flying due to safety considerations. With the specific adaptation, magnetic monopoles are deposited in the magnet materials, producing internal tensile stress.

Since no explosive controlled facilities were available, and there was no wish to destroy the VT, the experiment was terminated at 90% antigravity performance. It was completely successful, and adequately demonstrated the validity of the unified field theory concepts utilized in our approach.

Conclusions

A new unified field theory has been developed, tested, and at least partially verified experimentally. The concepts of the theory have been applied by Sweet in a series of inventions that produce readily usable, safe electromagnetic power directly from the vacuum.

The methodology lends itself to formulation of power devices without moving parts. Antigravity, predicted by the concepts of the theory, has been demonstrated in actual practical demonstrations on the laboratory bench.

Though not discussed in this paper, application of the concepts and methodology to a large variety of other fields, such as medical reversal of aging and curing of almost the entire range of present debilitating diseases, has been previously pointed out. [ref. 23]

We have also pointed out the mechanism for Kaznacheyev's cytopathogenic effect, or the induction of cellular pathology at a distance by electromagnetic means. [ref. 24]

We have also pointed out the specific mechanism involved in Priore's device, which in rigorous laboratory animal testing under the auspices of eminent French scientists, demonstrated nearly 100 percent cures for terminal cancers and leukemias, sleeping sickness, artherosclerosis, and other debilitating diseases.[ref. 25]

We believe we have also produced the concepts enabling the direct engineering and therapeutic manipulation of Popp's master cellular control system. [ref. 26]

We conclude that the concepts we have utilized and experimentally demonstrated are universal, as implied by any notional unified field theory.

Our conclusion is that the concepts, theory, and experiments, taken together, are sufficient for investigation and replication by the scientific community.

If replicated and fully substantiated, we believe the work will directly point the way to, and usher in, a new unified field theory physics of universal application.

Speculated Implications

As can be seen, the implications of the new approach are profound. The authors believe they have ushered in the forerunner of a vast new physics, one which will change our lives, and our view of physical reality, in ways previously undreamed of.

By mastering, controlling, and gating the vast, incredible energy of the seething vacuum, we can power our automobiles, flying machines, and technology inexhaustibly. Further, it can be done absolutely cleanly; there are no noxious chemical pollutants to poison the biosphere. With practical antigravity, ships can be developed to cross the solar system as readily as one crosses the ocean today.

And the ships, automobiles, and technology will never run out of fuel; the inexhaustible vacuum fills every system, everywhere, to overflowing.

Not discussed in this paper, it turns out that living systems, faced with the problem of achieving negentropy so as to maintain their form in a dissipative external physical reality, have always used the hidden internal channel for such things as mind, thought, cell control, and living functions.

With the new methodology, one now faces the advent of access and engineering of the mind and life of the observer as readily as the observer's physical body.

Transmutation of the elements, control of the weather, lighting and powering our cities and homes cheaply and cleanly, and provision of plenty for everyone is the vista for the future. We can in fact clean up the radioactive wastes, rid ourselves of coarse nuclear and petroleum powerplants.

We strongly stress that, with the ability to engineer the Schroedinger equation itself, the new methodology allows the direct engineering and control of quantum change, and hence of physical reality itself.

The methodology is extendable to hyperdimensions; nested virtual levels of the vacuum are already precisely that. The author has already pointed out the application of this emerging technology to the absolute cure of diseases such as AIDS, cancer, leukemia, etc., and shown that the Priore device in France already proved the efficacy of the application in the 60s and 70s.

We shall be able to rid ourselves and our descendents of diseases. With direct access to the actual software of life and mind, in the future we should be able to achieve levels of education previously unattainable, by directly inputting the relevant software.

Previously we have also pointed out that four nations of the world are already embarked on weaponization of scalar EM unified field technology. It is sobering to think that, in addition to having the ability to make our planet a paradise for humankind, we also will have the ability to make it a hades.

For that reason, we are doing our best to clarify the technical concept and the theory in this 1991, hopefully with the view that humankind will seize upon the positive aspects, and develop and apply this technology for the betterment of all people everywhere.

Long ago, Albert Einstein said these words: "It would of course be a great step forward if we succeeded in combining the gravitational field and the electromagnetic field into a single structure. Only so could the era in theoretical physics inaugurated by Faraday and Clerk Maxwell be brought to a satisfactory close."

And Teilhard de Chardin wrote: "Someday, after we have mastered the winds, the waves, the tides and gravity, we shall harness for God the energies of love. Then for the second time in the history of the world man will have discovered fire."

The authors fervently believe they have come upon fire for the second time, as allegorized by de Chardin. If so, let us all use the knowledge wisely.

References

[1] Maxwell's original quaternion EM theory is contained in some 200 quaternion equations and differs extensively from the restricted Heaviside/Gibbs vector interpretation universally taught today as "Maxwell's Theory." See James Clerk Maxwell, *A Treatise on Electricity and Magnetism*, Oxford University Press, Oxford, 1873. The third edition is by Dover, 1954.

[2] E.T. Whittaker, "On the Partial Differential Equations of Mathematical Physics," *Math. Ann.*, Vol. 57, 1903, p. 333-355; "On an Expression of the Electromagnetic Field Due to Electrons by Means of Two Scalar Potential Functions," *Proc. Lond. Math. Soc.*, Series 2, Vol. 1, 1904, pp. 367-372. The first paper was in fact a detailed theory of the scalar standing potential wave that Nikola Tesla discovered four years earlier, on the night of July 3-4 1899, being radiated from thunderstorms, which he entered in his Colorado Springs Notebook on the morning of the 4th. More recently the Whittaker structure (WS) inside potentials, including the Schroedinger potential, has been shown by V.K. Ignatovich, "The Remarkable Capabilities of Recursive Relations," *Am. J. Phys.*, 57(10), Oct. 1989, p. 873-878, without credit to Whittaker or to the presence of such structured scalar potentials in Maxwell's original quaternion EM theory. These WSs are universal to scalar potentials; e.g., for the same in acoustics, see Richard W. Ziolkowski, "Localized Transmission of Wave Energy," *Proc. SPIE,* Vol.1061, Microwave and Particle Beam Sources and Directed Energy Concepts, Jan. 1989, p. 396-397.

[3] See Y. Aharonov and D. Bohm, "Significance of Electromagnetic Potentials in the Quantum Theory," *Phys. Rev.*, Second Series, 115(3), Aug. 1, 1959, p. 458-491. This paper pointed out the primacy of the potentials. Instead of being causative agents, the force fields are actually effects generated from the potentials. This is in complete violation of both classical electromagnetics and classical dynamics, but it is absolutely required by quantum mechanics. For an extensive discussion of the Aharonov-Bohm effect and an extensive list of references, see S. Olariu and I. Iovitzu Popescu, "The Quantum Effects of Electromagnetic Fluxes," *Rev. Mod. Phys*. 57(2), Apr.1985. See Bertram Schwarzschild, "Currents in Normal-Metal Rings Exhibit Aharonov-Bohm Effect," *Physics Today,* 39(1), Jan. 1986, p. 17-20 for confirmation that the Aharonov/Bohm effect has indeed been firmly proven experimentally.

[4] It is pointed out that today all potentials are well known to be gravitational entities. However, this was not known in Whittaker's time, and so he himself did not realize that he had actually produced an engineerable, testable unified theory of electromagnetics and gravitation.

[5] T.E. Bearden, "Possible Whittaker Unification of Electromagnetics, General Relativity, and Quantum Mechanics: Part I: Background," Presented to Ala. Acad. Sci. Annual Symp., Univ. Jacksonville, Mar. 1991.

[6] For the theory of a pumped phase conjugate mirror, see David M. Pepper, "Nonlinear Optical Phase Conjugation," *Opt. Eng*., 21(2), Mar./Apr. 1982, p. 156-183; Amnon Yariv, *Optical Electronics,* 3rd Edn., Holt, Rinehart, and Winston, New York, 1985. In a normal triode tube, the amplified plate signal is 180 degrees out of phase spatially with the grid input, but in-phase with it in respect to rate of flow through time. In a PPCM, the amplified phase conjugate replica wave is in phase spatially with the signal wave, but 180 degrees out of phase with it in respect to its rate of flow through time. It is pointed out that a PCM with a gain of unity produces a coupled EM wave/antiwave pair whose energy is additive in 3-space but subtractive in the first derivative of the fourth dimension, time. Hence it is no longer an electromagnetic wave as such, but an oscillatory wave of stress upon the local rate of flow of time. Hence it is a powerful electrogravitational wave, whose EM nature is hidden in the guise of a scalar EM potential. It is also a wave of variation in the local gauge, and of variation in the local ST curvature.

[7] See T.E. Bearden, *The Phase Conjugate Vacuum Triode*, Apr. 23, 1987, privately published. An earlier pencil draft was initially produced.

[8] Sweet has continued to extend his theoretical treatment. A formal paper providing the complete mathematical theory of the vacuum triode has been drafted, is in final review, and will be submitted to a leading journal by mid-1991.

[9] See Chapter 25: Outlook, "Possibility of Vacuum Engineering," T.D. Lee, *Particle Physics and Introduction to Field Theory,* Harwood, New York, 1981, pp. 824-828.

[10] In 1977 Ilya Prigogine received the Nobel Prize for extending thermodynamics; in particular, for the theory of dissipative structures in nonequilibrium thermodynamics. In Prigogine systems, negentropy is known to be possible.

[11] Robert G. Sachs, *The Physics of Time Reversal*, Univ. Chicago Press, Chicago, 1987.

[12] Note that this moves the entire notion of the charge of a fundamental particle to a deeper and more extended level. Now the charge may be discretized, but it is not quantized in the hard conventional sense. Further, the internal Whittaker structure of the massless VPF photon exchange of vacuum and mass, which, quantum mechanically, is what the electrical charge of the particle is in the first place, is deterministically structured. Note that this violates the present assumption that all like charged particles are identical; now two electrons may have either the same or different magnitudes of charge, and even when the magnitudes are the same, their internal charge structures (Whittaker structures) and VPF exchange with the vacuum may differ. Also note that this resolves the severe QM problem of missing chaos (hidden order) in quantum change. The reason for the problem was the use of Gibbs statistics with its assumption of random variable change, which a priori excluded hidden order (and hence chaos) from QM. That was only a special case, albeit an important one. There are now three QM cases: (1) the conventional case, where there is no hidden order; (2) the case where there is some hidden order, and the statistics is chaotic, not random; and (3) the case where the QM change is deterministic, with essentially total hidden order. Note that the Whittaker methodology allows one to directly engineer cases (2) and (3), including the Schroedinger equation itself.

[13] The present second law of thermodynamics is written only for time-forward entities, and need not apply for the time-reversed case. Merely viewing the energy-dissipating forward time case in reverse allows an appreciation of the time-reversed case. In other words, the second law of thermodynamics is incomplete as presently stated. The complete law has a corollary to cover the increase in order as the time-reversal of the system increases. Thus the complete law consists of two parts: (1) the entropic, time-forward case, and (2) the negentropic time-reversed case. Since the re-ordering can be amplified at will by a PPCM process, the correct distinction between the two subsets of the complete law is important, and applies to real systems.

[14] A.D. Sakharov, *Theor. Math. Phys*., Vol. 23, 1975, p. 435.

[15] T. E. Bearden, *Gravitobiology: A New Biophysics*, Tesla Book Co., 1991.

[16] C.f. Charles W. Misner, Kip S. Thorne, and John Archibald Wheeler, *Gravitation*, W.H. Freeman and Co., San Francisco, 1973, p. 1191.

[17] E.g., see Richard Kidd, *et al*, "Evolution of the Modern Photon," *Am. J. Phys*., 57(1), Jan. 1989, pp. 27-35. See also R. Chen, "Cancellation of Internal Forces," *Am. J. Phys.* 49(4), Apr. 1981, p. 372.

[18] A nonlinear material may simply emit a photon, or it may act as a phase conjugate mirror (PCM) and emit a phase conjugate replica of the absorbed photon. When the material emits a normal photon, it measurably recoils. When it emits a time-reversed photon, it does not recoil, as already experimentally established in nonlinear phase conjugate optics. The solution to the mystery is this: When emitting a normal photon, the material does not act as a PCM. In that case the matching antiphoton which split from the interacting graviton (the graviton that yielded the external photon) interacts with the nucleus, producing a recoil action with a gain of one. Thus

Newtonian third-law recoil of the nucleus occurs. On the other hand, when the material acts as a PCM, it also emits the antiphoton outside the atom to "backtrack" the absorbed "signal wave" photon. In that case there is no Newtonian recoil of the nucleus, because the agent for causing recoil did not interact with the nucleus to produce it.

[19] Richard E. Prange and Peter Strance, "The Semiconducting Vacuum," *Am. J. Phys.* 52(1), Jan. 1984, p. 19-21. Also, under nonlinear conditions, a particle can absorb more energy than is in the light incident on it, absorbing the energy from the vacuum VPF. Cf. Craig F. Bohren, "How Can a Particle Absorb More Than the Light Incident on It?"; *Am. J. Phys.* 51(4), Apr. 1983, p. 323-327.

[20] Cf. Pepper, ibid. and Yariv, ibid. For a specific example, see Mary J. Miller, et al, *Appl. Phys. Lett.* 41(8), Oct. 15. 1982, p. 689-691.

[21] Again, for the theory of the PPCM, see Pepper, ibid., and Yariv, ibid.

[22] E.g., see T.E. Bearden, *Gravitobiology: A New Biophysics*, Tesla Book Co., Chula Vista, CA, 1991, p. 33-36.

[23] Bearden, *AIDS: Biological Warfare*, Tesla Book Co., 1988; *Gravitobiology: A New Biophysics*, Tesla Book Co., 1991; *Analysis of Scalar Electromagnetics*, Tesla Book Co., 1990.

[24] Cf. Vlail P. Kaznacheyev and L.P. Mikhailova, *Ultraweak Radiations in Intercellular Interactions*, [in Russian], Novosibirsk, 1981; Vlail P. Kaznacheyev, "Electromagnetic Bioinformation in Intercellular Interactions," *Psi Research*, 1(1), Mar. 1982, p. 47-76; N.D. Devyatkov, Ed., "Applications of Low-Intensity Millimeter Wave Radiation in Biology and Medicine", [in Russian], *IRE Akad. Nauk. SSSR*, Moscow, 1985.

[25] Cf. Antoine Priore, "Method of Producing Radiations for Penetrating Living Cells," US Patent No. 3,280,816; Jean- Michel Graille, *Le Dossier Priore*, De Noel, Paris, 1984 [in French]; Christopher Bird, "The Case of Antoine Priore and His Therapeutic Machine: A Scandal in the Politics of Science," Appx. I to Bearden, *AIDS: Biological Warfare*, 1988.

[26] Cf. Fritz Albert Popp, "Photon Storage in Biological Systems," in Fritz Albert Popp, *et al*, Eds., "Electromagnetic Bio-Information", *Proceedings of the Symposium*, Marburg, September 5, 1977, Urban & Schwarzenberg, Baltimore, 1979, p.123-149; also *Biophotonen: Ein neuer weg zur Losung des Krebsproblems*, Verlag fur Medizin, Heidelberg, 1976 [in German].

Floyd Sweet's VTA Unit

by
Walt Rosenthal

(Excerpted from: *Space Energy Newsletter* IV (1) March 13, 1993 ~ PO Box 11422, Clearwater, FL 34616)

The Vacuum Triode Amplifier (VTA) invented by Floyd Sweet consists of two ferrite magnets and two to four coreless wire coils. It is self-powered in the preferred configuration and produces in excess of one KW of 120 VRMS 60 HZ power in the form of energy that resembles electricity. This energy is referred to as negative energy. The VTA development history, its anti-gravity characteristics, negative energy properties, and some of the personalities involved are discussed.

This is a story of Floyd Sweet's trials and tribulations involving a mystery wrapped in an enigma. God revealed to Floyd sufficient information to build a machine to provide energy that resembles electricity. However, God did not provide solutions to the frustrating string of problems that would surface in converting the idea into a working device. There are several people in this story that have provided help and some who have hindered.

When Tom Bearden met Floyd, the device Floyd had developed was producing a few watts of alternating current at 28 volts. Tom saw in Floyd's device the physical embodiment of a principle he had theorized many years before. Tom had never designed or constructed a physical device to access this elusive energy source.

Tom's name for the extraction process is 'Four Wave Phase Conjugate Mixing'. The energy source is the intense non-cohered energy that is thought to be present everywhere in the universe. Various researchers through the years have given this energy different names, such as "Zero Point Energy", "Gravity Field Energy", "Radiant Energy", and others.

Tom Bearden gave Floyd's device the name "Vacuum Triode Amplifier" or VTA. The machine provides a small amount of its output fed back to the equivalent of a grid which gates or coheres a large amount of energy which appears at the device output terminal as something that resembles electricity! Negative Electricity.

This energy can be utilized by devices designed to convert electricity to light, heat, or mechanical work or anything else for which normal electricity is used. The properties of this energy, although superficially resembling the 120 VRMS 60 HZ power we normally use, are unique and sufficiently different from conventional electricity, so that it should be classified as an entirely new energy form. It will require careful extended study by a wide range of people in order to document its properties in the manner scientists have done with conventional electricity.

Tom Bearden refers to this energy as negative energy, and he states that negative time must be utilized. In negative time according to Bearden, gravity is a repulsive force.

Floyd's experiments demonstrated that the VTA loses weight in proportion to the amount of generated "Negative Energy". This was carefully documented by Floyd on a kitchen scale. The machine weight was observed decreasing with increased load in a quite orderly fashion until a point was suddenly reached when Floyd heard an immense sound, as if he were at the center of a giant whirlwind but without actual air movement. The sound was heard by his wife Rose in another room of their apartment and was heard by others outside the apartment. The experience was very frightening and the experiment has not been repeated.

Some observers of the light emanating from ordinary 120 volt 100 watt incandescent bulbs powered by the VTA claim the light is different, softer than normal incandescent light. The VTA magnets and coils when powering loads of over a kilowatt become cold and temperatures of 20 degrees F below ambient have been observed. Similar reports of below ambient temperature of energy machine components have been reported by other inventors, such as John Bedini and John R.R. Searl.

When the VTA output wires had been accidentally shorted, first an extremely brilliant flash occurred. When the wires involved were examined shortly afterward, they were found covered with frost. Unfortunately this also caused the VTA magnet to fracture and the machine ceased operating. In one instance the machine operation ceased during a local earthquake. The physical shacking was not believed to be sufficiently severe to disrupt the machine magnet/coil relative placement or physical shock to the magnet such as a hammer blow might impart. The best speculation is that the machine was affected by the intense electromagnetic pulse known to originate from earthquakes.

Conventional instruments used to measure volts, amps, or watts appear to correlate machine output as coupled to loads, but only up to approximately 1 KW; above that value they may indicate zero or some other value not related to the known actual load.

Floyd's attempts to use conventional electrical design formulas relating number of coil turns, amp turns on drive coils, and any other parameter to predict observed outputs have all resulted in failures with calculations. Empirical formulas based on actual tests have been documented.

Observation of machine output voltage of approximately 120 VRMS while the load was changed in 100 watt increments from 100 watts to 1000 watts has shown no observable output voltage change, which suggests an extremely low internal equivalent impedance. The 20 gauge magnet wire in the output coils consisting of several hundred turns has significant DC resistance which is not correlated with the unvarying output terminal voltage at different loads. It is speculated that this energy does not travel within the copper wire or its passage through the copper wire does not generate a voltage drop --- a most useful feature when transferring energy from one place to another.

One frustrating aspect of the VTA has been its failures, evidenced by the output voltage slowly decaying to zero over a few seconds or minutes. There also have been spontaneous instances of the voltage rising above 120 VRMS as observed by the increased lamp load bank brightness. The volt meters, ammeter, and power meter did not correlate with the brightness change except when the machine would the fail to produce any power.

Many times the VTA was normally left on powering a lamp load bank 24 hours a day. During a period of time when it appeared to be functioning properly all day long, Floyd got up at 3:00 AM to go to the bathroom. As he walked past the room where the VTA was located, he noticed that the lights appeared dim. He measured the voltage at 70 VRMS. Being tired at the moment, he returned to bed. The next morning when he rose, the voltage was back to the normal 120 VRMS and stayed there all day. The next night Floyd got up at 4:30 AM. The voltage was measured at 85 VRMS. Floyd returned to bed. The voltage was normal the entire next day.

A possible clue to this anomaly has appeared in an article by E.W. Silvertooth titled 'Motion Through The Ether' where Silver tooth describes a dual path laser interferometer experiment that conclusively demonstrated the presence of an ether that flows through our portion of the universe at greater than the speed of light with its vector in the direction of the constellation Leo. Floyd's VTA may be orientation sensitive to this ether velocity vector.

The VTA consists of two 4" X 6" X .5" grade 5 or grade 8 ferrite magnets spaced 3 inches apart in the attractive orientation, with the output and drive coils in between. The output coils are wound with 20 gage magnet wire. Their axis is parallel to the magnetic lines of force between the two magnets. The two drive (or excitation) coil axes are positioned at 90 degrees to the output coil axis. The VTA excitation coils may be driven by the VTA output voltage or a separate sinewave oscillator source.

The "Secret" to the machine is the process that "conditions" the magnets. This conditioning process determines the output frequency and also prepares the machine for operation. The same machine could be just as well "told" to output 50 HZ or 400 HZ. The conditioning technique is so novel, it is doubtful anyone would ever guess how it is done.

Oscilloscope observation of the VTA output voltage waveform shows an apparently perfect sinewave that is not phase locked to the local 60 HZ powerline voltage.

The VTA can be started by momentary connection of a 9-volt battery to the drive coils when the machine is operated in the self-powered mode. The operation is stopped by momentary interruption of power to the power coils.

The VTA "likes" to always see a minimum load of 25 watts.

Electrical shock to humans from the VTA may be more damaging than contact with a 120 VRMS 60 HZ conventional powerline voltage. Floyd has accidentally had VTA current pass from his thumb to his smallest finger. It appears to freeze the flesh and was extremely painful for at least two weeks.

The mechanism by which negative energy makes copper conductors cold but will also heat light bulb filaments is not understood. Tom Bearden has coined the term "Gravito-Striction" for this process and has described how he believes it works.

On the human side of the VTA development, some incidents are worth telling. Two people from Australia, who claimed they wanted to help Floyd, stole his notebook and promptly asked John Bedini for help in replicating the VTA based on the notebook contents. John recognized the notebook as belonging to Floyd and promptly asked them to leave. However, the notebook was never recovered.

Floyd has received many death threats over the phone, and some threats face to face. A well dressed gentleman in an expensive suit, tie, hat, and hundred dollar shoes approached Floyd on the sidewalk of the street where he lives and introduced himself as Cecil Brown. He showed him a picture of Floyd inside his apartment. Cecil then told him that he represented a conglomerate that did not want Floyd's device to appear in the world at this time. He further stated that sometimes unfortunate things happen to people who do not comply with the wishes of others. He then retrieved the picture and departed. Incidences like this do impart significant concern in Floyd's mind!

One real unsung hero of the human side of this story is Al Margolin, who for many years has provided test equipment, fabrication help, and transportation for Floyd and Rose whenever needed, and it was needed many times.

Floyd's long time friend and former employer Bill Lawry has provided living and project expenses and fabrication help when needed.

The reliable conditioning of the magnets in a manner that assures long time operation is the Achilles heel of this device. With the help of enough of the right people this device may change our world and open a new field of physics! This adventure of course is an on going and the final goal of powering the world with the VTA is still a long ways off.

VTA Notes

by
Don Watson, et al.

Floyd Sweet: Vacuum Triode Amplifier (VTA)

According to Floyd Sweet, who is now deceased, God "revealed" information to him about how to create a device that would provide energy "that resembles electricity." (1) Although Sweet may have claimed divine inspiration, don't let your skepticism deter you from reading on -- the end result is worth a good deal of consideration.

"The virtual vacuum is the primordial powerhouse of everything in the universe." Floyd Sweet

The Vacuum Triode Amplifier, the result of Sweet's hard work, is claimed to produce an overunity effect due to its interaction with the vacuum of space. Sweet declared that "the virtual vacuum is far from empty, far from nothing, it is rather seething with potential energy as the primordial powerhouse of everything in the universe." (2) This energy is referred to by Sweet's compatriot, free thinker and nuclear engineer Thomas Bearden, as negative energy. It was Bearden who gave Floyd's device the name "Vacuum Triode Amplifier" or VTA. Tom saw in Floyd's invention the physical embodiment of a principle he had theorized many years before, but Bearden himself had never designed or constructed a physical device to access this elusive energy force. Upon meeting Sweet and examining the VTA, Thomas Bearden recognized what he calls "Four Wave Phase Conjugate Mixing," a type of energy extraction that taps what he, too, believes to be a universal, ever-present source of energy. Whether called "zero-point energy," "gravity field energy," or "radiant energy," its availability for conversion of electricity into heat, light, or mechanical work makes it a new form of energy worthy of extensive research. Bearden thinks it is negative energy, whose acquisition requires negative time. This means that if gravity were similarly utilized, it would be construed as a repelling force.

In its physical form, the VTA consists of two magnets whose attractive sides are held about 3 inches apart by 2 to 4 coreless wire output and drive coils. The device is self-powered but can be started by connecting a 9-volt battery to the drive coils. One of the reasons that the Sweet vacuum unit falls into the free energy category is because it pertains to the wider technological domain that includes the prior research of other inventors such as Paul Baumann, of the Swiss commune, Methernitha, and Hans Coler (Germany 1942). (See AEI website for more info.)

The success of these three inventors' devices can be attributed to the work of Franz Kalusa and Oskar Kline in the first few decades of the twentieth century. By using "twin bifilar wound coils over permanent magnets," it is believed that the Sweet VTA, Swiss M-L converters, and Coler Magnetstromapparat utilize the same principle to acquire free energy. The coils are thought to cancel out the magnetic field that "the normal, excited EMF flow" causes. This allows the magnetism from the stack of permanent magnets to be directed into the 5th and 6th dimensions, which are "' curled up' within the other four dimensions," according to Kalusa. The magnets are then allowed to freely tap the space energy in those dimensions while the coil continues to distract the normal magnetic field, so to speak. The Sweet VTA is slightly different than the other two devices, in that "it uses special conditioned or activated permanent magnet material." It is therefore considered a "Stand alone device." This conditioning of the magnets is considered "the secret to the machine," since it could "be just as well 'told' to output 50 HZ or 400 HZ." When the theory behind the source of free energy that runs these three devices was originally postulated, Einstein rejected it. Eventually he accepted the idea and allowed it to be published by the Prussian Science Academy.

Floyd's homespun experiments with the Vacuum Triode Amplifier apparently tapped some very interesting forces. During one test in his apartment, the VTA actually weighed less and less the more that was applied to the load. In other words, the more "negative energy" generated, the more anti-gravity observed. At a certain point, a frighteningly loud sound jolted the inventor, and that particular experiment was forever retired.

A recurring theme in other experiments is a decrease in temperature of the Sweet VTA. Sometimes the magnets and coils measure as much as 20F below air temperature when the device is powering loads of over one kilowatt. Once when the wiring was accidentally shorted, a "brilliant flash" appeared and frost was observed on the wires. Sweet was even electrocuted by his device once, which appeared to freeze the skin through which the current passed, and he believes that it was more damaging than a shock from conventional voltage in a power line would be. Bearden calls the simultaneous cooling of the device and heating of what it powers "Gravito Striction." Similar reports of energy machine components that exhibit below-ambient temperatures have been observed by other inventors, such as John Bedini and John R.R. Searl. A theory that could explain this effect has been postulated by Victor Schauberger, Walter Russell, and other researchers. They think "nature uses two types of 'spin,' one clockwise, the other counterclockwise. The clockwise spin is a concentrating effect which generates Heat as a byproduct and is used in all modern power generation and utilization. The counterclockwise spin is an expanding effect associated with cold and the attempt of nature to regain the unity that prevails when force of any type (Aether, magnetic, light, electric, gravitic, etc.) is not polarized. In fact, the very existence of electricity, magnetism, gravity, heat, light, etc. is not possible unless the Aether is thus polarized to create the interferences necessary to provide potential differences."

Other oddities of the VTA's performance have been reported. The device is known to have stopped working one day after an earthquake. Though it was not substantial enough to disrupt the VTA's set-up, it is believed that the earthquake's accompanying electromagnetic pulse interfered with the machine. Also, when Sweet left his device on for 24 hours a day, he noticed that at night there was less voltage measured and the lights it powered were dim, while in the daytime there was more voltage and the lights were bright. Obviously, there is still a lot to learn about this new source of energy.

Sweet's VTA unit is listed as an overunity device in the database of the Institute for New Energy (INE). The unit was tested by Tom Bearden on April 30, 1987, in front of multiple witnesses, and its most recent demonstration occurred in the 1990s (3). According to its own guidelines, INE rates the invention at the highest interest level, with the potential for "new physics and great impact." INE also believes that "the device seems to be scalable to a larger size." INE ranks the commercial aspects of Floyd Sweet's VTA unit as very high since "the operation techniques and measurements are being refined." Bearden vouches for the validity of his colleague's invention, which can produce 500 watts of electricity with only a 330-microwatt input (4).

Like many other inventors, Floyd Sweet ran into problems with threats and theft. Two Australians once offered their help to Sweet and then stole his work notebook. Upon asking John Bedini for help in understanding the notebook's contents in order to replicate the device, Bedini noticed it was Sweet's property and refused to cooperate. Sweet never recovered the notebook. The inventor also received death threats, over the phone and face to face. Reportedly, a well-dressed man wearing a very expensive suit and shoes approached Floyd on the street he lived on. He introduced himself as Cecil Brown, showed him a picture of Sweet inside his apartment, and said that he represented people who did not want Sweet's invention to be revealed to the public. The man then said "that sometimes unfortunate things happen to people who do not comply with the wishes of others," and walked away.

The VTA is not without problems. Although it is capable of producing "in excess of one KW of 120 VRMS 60 HZ power," the latest VTA prototype "has not shown the ability to continue operation for extended periods of time." It is thought that electrical disturbances outside the device are responsible for disrupting the internal resonance. The device often fails altogether to produce a steady output, as it is common for the voltage to drop to zero within only seconds or minutes. It is not yet known how or if this problem can be solved.

Another challenge is that conventional electrical design and instrumentation does not seem to be compatible with the VTA. Floyd tried to apply conventional design formulas in order to figure out how many coil turns and amp turns should be made to achieve desirable outputs. To his dismay, this method "resulted in calculation inconsistencies." When it came to using conventional instrumentation to measure watts, volts, or amps, it would not work properly over 1 kW; instead, it would "indicate zero or some other value not related to the known actual load." For instance, when the VTA's voltage surpassed 120 VRMS, indicated by the increased brightness of a lamp load, the ammeter, voltmeters, and power meter did not correlate with the change in brightness. These mysteries still plague the work of present researchers and scientists who are trying to further understand Sweet's device. The fact that they "are not quite sure why Sparky presents such flaws in his data releases" indicates either the difficulties Sweet ran into or the changing, unpredictable nature of the device's functioning (5). The painstaking process of duplicating the VTA's overunity effect coupled with the fact that "reliable conditioning of the magnets in a manner that assures long time operation is the Achilles heel of this device" mean that "we must await further troubleshooting and development of this unique Sweet VTA technology." Let's hope that it happens sooner than later.

Does Sweet's Work Explain Searl's Device?

Floyd Sweet claims to have obtained over unity electrical energy effects by applying a special magnetization process to some ferrite magnets. His setup consisted of one or more specially conditioned magnets and at least 2 coils. The magnets are fixed (stationary). One coil was used to excite or begin the oscillations of the magnets with a small AC field. The other coil(s) were used to "pick up" the magnet's large magnetic oscillations. (Clearly a non-linear effect occurs here for the excitation AC magnetic field is small compared to the output.)

See, for example, Alan Dubla's web pages and this article for a more detailed description of Floyd Sweet's devices.

I have also investigated Prof. John Searl's magnetic motor/generator. After spending a couple of years volunteering my time with D.I.S.C. Inc. USA to help Prof. Searl reproduce his device according to his explanations and instructions, I have not been able to figure out by what physical bases Prof. Searl claims his devices worked. (Note: I have not worked directly with Prof. Searl. However, the group working here in the USA was in direct and frequent contact with Prof. Searl.) He has developed a construction method which he calls "The Laws of Squares" which, in my opinion, is so far removed from the language of physics and engineering that one is left completely in the dark as to the cause of the motion in his devices. We are therefore free to think up our own methods and explanations for constructing a device in which magnets are "self-propelled".

Here is a rough illustration [Not included here] of Searl's setup. For more detail on Searl's devices see the info at this web site or just search the web.

What is most interesting for the following comparison is the similarity (but not perfect match) between Sweet's method of conditioning the magnets and Searl's magnetization process. In both cases, an AC field is applied to the material. (There is more detail, of course, to both Sweet's and Searl's magnetization process. I am only pointing out the most obvious similarity here.)

So, is there a way to use Sweet's effect to produce a Searl-like magnetic motor?

Consider "large" but "slow" magnetization vector oscillations cohered (in sync) to produce traveling waves. It would then be possible for the wave to "pull" (or "push") a disk magnet along with it. This is illustrated in the next figure [Not included here] in which a disk magnet (red) moves along a magnetization vector oscillation traveling wave.

If such waves can be created around a cylinder (or ring) then it might be possible to move the stacks of disks around this center cylinder.

In Sweet's work, a small AC excitation is needed to begin the larger magnetization oscillations. Applying this concept to the Searl-like arrangement, the disks rolling around the center cylinder would be "seen" by the center cylinder as small "excitation" magnetic oscillations.

Searl says that his first devices needed to be "started". That is, the stack of disk magnets need an external source to start them rolling. This could have excited large magnitude oscillations in the center cylinder in a similar way that Sweet's small excitations started the large magnetization oscillations in his magnets.

One problem that I see with this arrangement is that I would not expect the wave length to be so large that the disks fit between wave crests. I would expect the wave length on the center cylinder to be much smaller. Then it is doubtful that the disks would be carried along.

This may be why Searl claims that both the center cylinder (actually, its a ring in Searl's set-up) and the disks need to be specially magnetized (conditioned). The result may be another magnetization wave around the disks. These waves in the disks coupled with the wave in the center cylinder may be like two gears in which their teeth mesh. (Searl says that the frequency used to magnetize the disks is not to be the same as that used for the center ring. So it is not clear whether or not this "gear" analogy is appropriate.)

In a static condition (that is, considering the center cylinder alone with no disks around it) The magnetization vector wave might "stop" (might not be traveling around the cylinder) but it might retain its alternating "pattern" around the periphery of the cylinder. This might be the origin of the "pattern" that Prof. Searl claims is measured around his center ring.

Both Sweet and Searl claim that once the oscillation started and they extracted energy from their devices the magnets would become very cold.

I have read that in ferromagnets, the magnetization vectors of the material are constantly oscillating. But the oscillations are chaotic/random. Sweet may have found a way to cohere or "order" these oscillations with a non-linear oscillating result. And Searl (independent of Sweet) might be using these oscillations to "carry" the stacks of disk magnets around the center cylinder.

It is claimed that another researcher by the name of Hans Coler was also able to induce "large" oscillations in ferromagnets. I don't think there was any kind of special "magnetization" process involved, but I could be wrong.

As far as I can determine, "large" scale coherence of magnetic oscillations is not known to exist in "large" magnets. (But then neither are the over unity effects produced by Sweet, Searl and Coler!)

On the other hand, "small" coherent oscillations are know to exist in magnetic material.

If you want to read up on magnetic oscillations, take a look at the following books.

Magnetization Oscillations and Waves, by A.G. Gurevich and G.A. Melkov, CRC Press, 1996
Theory of Magnetostatic Waves, by D.D. Stancil, Springer-Verlag, 1993
Magnetostatic Waves and Their Application, by P. Kabos and V.S. Stalmachov, Chapman & Hall, 1994

These books mention the use of a DC magnetic "bias" field together with an AC magnetic field being applied to the magnetic material sample to induce various kinds of oscillations. This technique is called "parallel pumping". It is clear, to me, that AC magnetization techniques have been applied to small sample magnetic material now for many years. But the science folks don't seem to have applied such techniques on the "large scale" as have Sweet and Searl.

~~~~~

Magnetic Bubbles

A fellow handed out a paper at the '94 INE Conference, which was sent to me (Alan Dubla), that had references to the Sweet VTA. It talked about creating a magnetic bubble and extracting energy out of it using methods similar to those described in articles written on Sweet's VTA. I was able to recreate a magnetic bubble, in small round BaFe magnets. I have had no success extracting energy out of it yet, but it is rather interesting and worth studying for a while.

When the bubble is created and stable, the magnet has a very weak field. In the picture bellow, I have 8 1.25 inch diameter ring magnets lined up in two rows of four each. There is a strip of magnetic viewing paper laid across each of the rows. This paper will show the Bloc wall as a light green band. The Bloc wall, in easy to explain terms, is where the north and south pole meet in a magnet. On one side of the wall you have the north pole and on the other side you have the south pole. Looking at the magnets from right to left, top to bottom, you will notice that each magnet has a light green circular band over it, as seen with the viewing paper. The number above each magnet represents the number of joules it took to alter the original magnetic field to form the new, modified magnetic field. As the joules increase, the bubble shifts position from the outside of the magnet towards the middle. As the joules increase even more, the bubble starts moving towards the center. When that happens the original orientation of the magnetic field will be flipped 180 degrees. The bubble is created in the magnet as a result of partial demagnetization. By doing this, I am moving the Bloc wall and magnetic poles 90 degrees from their original position. After the field is modified, the north pole is now orientated towards the center of the magnet, and the south pole is along the outer edge of the magnet. When the band is centered between the outer circumference and the inner, the magnet is at its weakest point and the poles flip very easily. Running a 60 Hz AC signal running through a small electromagnet at a
~~~~~

90 degree angle to the magnet face makes the poles flip-flop, and the magnetic bubble expands and contracts, back and forth.

Magnetizer

To create the magnetic bubbles, you need some high power magnetizing equipment. In the picture I have a box housing 8000 uf worth of caps, a giant resistor to slow current draw, and a 600 amp SCR for switching. The power supply is an old HP 300 VDC.

The caps charge up, and with the push of a button the caps are discharged through a 1 ohm coil with the magnet in the middle. The small coil in the picture is what I used to make the magnetic bubbles. The big coil is designed for the 4X6 magnets, but more power is required. The amount of joules discharged is variable. The small BaFe magnets require around 205 joules to create the neutral/centered magnetic bubble.

~~~~~

From: **Jerry Decker (Keelynet) ~** *Date:* Sat, 29 Jul 2000 (07:55:22)

Gunderson & Sweet VTA

In a refreshing turn of events, however, a correspondent named Graham Gunderson recently Emailed me a very interesting defense of Bearden's view that EM waves can be longitudinal and still carry a polarization sense.

And, relevant to outphased waves, Gunderson takes issue with another argument-- the one that asserts that self-cancelling coils "do nothing".

He says they do indeed "do something", and describes some of his experimentation along these lines. This is what I like to see-- calm, rational explanation and some experiments to back it up.

With Gunderson's email posted at: http://www.tricountyi.net/~randerse/graham.htm

and it does have a section about vibrating neodymium magnets...

~~~~~

From: Graham Gunderson ~ To: jlnlabs@egroups.com ~ Sent: Saturday, 29 July 2000 8:49 AM

A Way to Program Magnets

I have spoken with a fellow who had hired Don Watson several years ago to replicate the Sweet device; allegedly Watson was able to get about 3 watts from one model. The deal however went sour somehow, and work was not continued.

Sweet, too, had a beginning model that output 6 watts until he did something *more* to excite the living you-know-what out of the barium nuclei - only after that was the phenomenal power gain (and 500 watt nominal output) available to use (for a while - until it inevitably sputtered out).

Watson is correct in mentioning one way to excite barium nuclei in a magnet. It is a weak method however, and does not cause much action (at least as I have done it)

One experiment I tried on this angle some time ago, caused some odd effects.

I had a 4x6x1" barium ferrite slab sitting on top of a large tupperware (polypropylene) container, about 2 feet off the floor. The slab was magnetized and its attraction held a steel alligator clip onto it, in electrical contact. The other end of the alligator clip wire (about 2 feet long) connected to one terminal of a neon sign transformer.

The neon xfmr is rated 15 kV, center tapped, so each output represents about a 7.5 kV RMS AC signal, the two outputs being out of phase of course. The other end of the xfmr output was left open. Only one end was used. The transformer's case (center tap) was grounded.

So the magnet sitting on the plastic container was oscillated with about 7.5 kVRMS at 60 Hz.

I was living with a roommate at the time who came near the thing and didn't know it was "on". Glad he didn't touch it.

He was curious what it was and said when he put his head near the magnet to have a look, it built up a "pressure" behind his forehead, which caused him a curious headache afterward.

After I heard this I went down to the basement where it was and did the same thing, putting my head within about 2 feet of the magnet. It began to hurt in a way, it was a kind of pain from the thing that I remember feeling. It caused in me a persistent headache as well, and also a shift in mood, I became very "spacey" and somewhat disturbed

This also seemed to make both me and my roommate prone to violence, we both began to get irritated at trivial things and ended up in a brief fist fight. This was very out of character for both of us. My (now ex) roommate still says I should do more with my "electric brainwhacker".

The magnet, after a while of this treatment, does develop a *slight* and mellow buzz, as I am used to feeling it. However I doubt it would be immediately perceptible to the unaccustomed observer. It is a small thing. And it will not create magnetic bubbles, so far as I know.

The excitation does decay rapidly, and usually will not hold for more than a period of ten minutes. It begins to decay immediately after excitation is removed, and the rate of decay appears to be exponential.

This is in sharp contrast to other things I have done, in which the vibrations are stronger and fully perceptible to unaccustomed observers. The decay rate is not exponential, but seems to follow a curve similar to the run down of an alkaline cell - it holds for a while, then tapers off at a faster rate. And it can happen over days, not minutes. Also it travels, I have been able to take energized magnets on a 300 mile road trip with no acceleration in decay. There has been mention, for intance, of the Testatika's inability to continue power output when moved. (To me --- as good ol Einstein would have put it --- a "clew".)

So it appears that there are various modes of BaFe excitation, and that they have distinct effects, as evidenced, in part, by the different curves of excitation-decay. For starters though, HV excitation will show you a bit of something... but no promises, if you don't think you see any effects :)

Graham

~~~~

(From: Luc Corriveau ~ To: jlnlabs@egroups.com ~ Sent: Tuesday, July 25, 2000 1:39 AM)

http://216.60.190.54/comm697.htm

Sweet VTA, ISNE & Miscellany (6/15/97)

In fact, Don Watson said the magnet to be programmed was to be excited between two plates that were charged
with at least 20KV (DC or AC). This would cause a 'ringing' in the barium which would last for upwards
of 15 minutes.

During that time, the magnet could be subjected to a sharp pulse at roughly 260 degrees of a 60 cps
sinewave. He said this was based on his own experiments and seemed to get the best results.

Why would I believe Don Watson? Because he showed me two magnets, both 4" X 6" by 1/2" thick. One was
'programmed', the other was not.

Using a piece of magnetic field line viewing plastic to view the unprogrammed magnet, I could clearly see the south pole on one face and the north pole on the other face, separated at the middle of the 1/2" magnet width by the Bloch wall.

However, in the programmed magnet, the south pole did not stop at the midpoint, but wrapped up onto the face
of the north pole section, extending inward from the edge by about 1/4". That is where the Bloch wall HAD MOVED.
~~~~

It was like altering the duty cycle of a square wave, where a normal magnet would be analogous to a North/South relationship of 50:50, the programmed magnet was something like 30:70. Quite amazing!

Additionally, there was a bubble within the top North pole face, looking much like an air bubble in water covered by plastic. And when you put another magnet near this bubble, IT MOVED away, just like pressing on a sheet of plastic to move the captive air bubble.

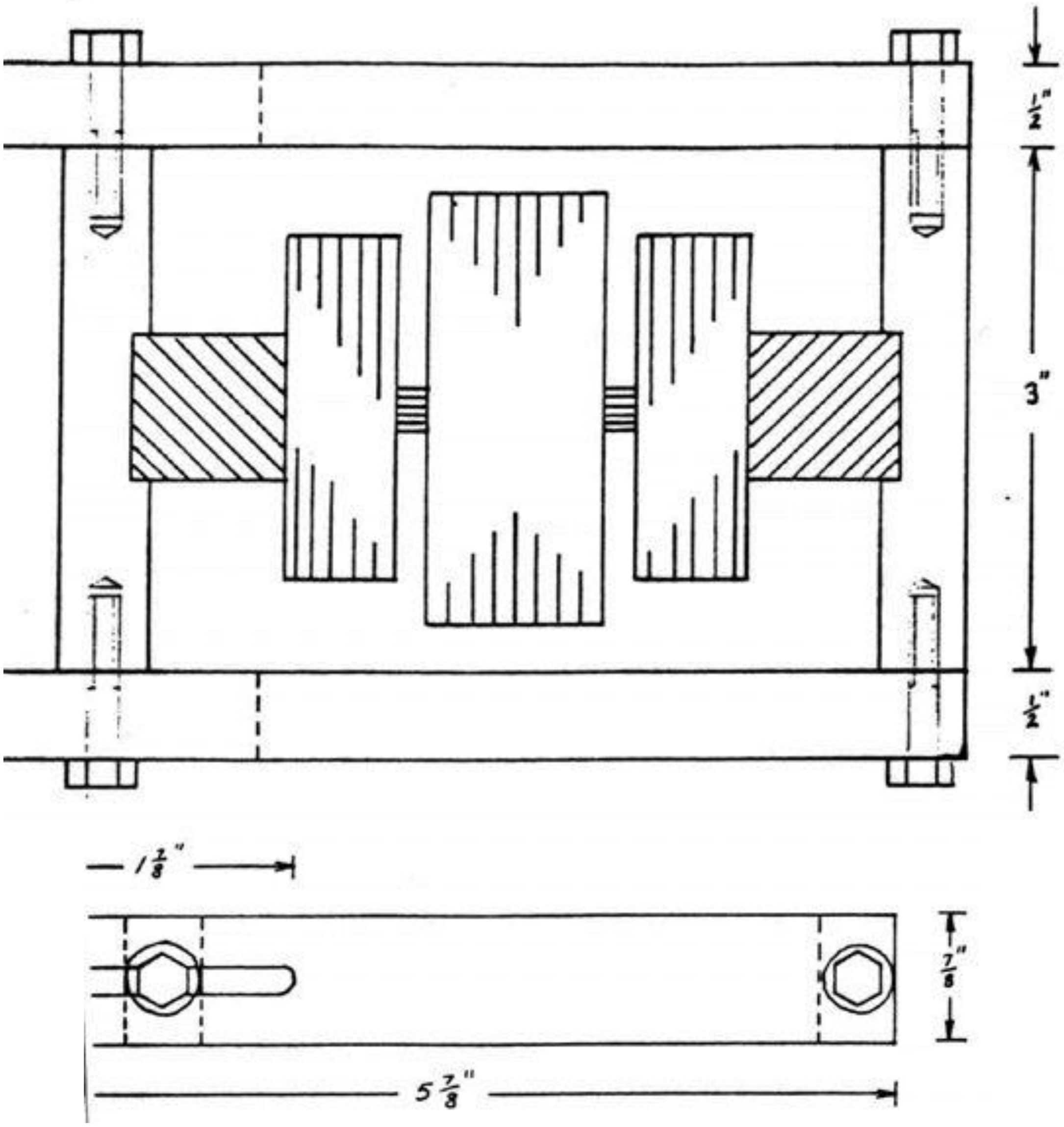
Don said the programming did not always take, but that you could just do it again, using the same magnet until it did. Also that some magnets were imperfect, having internal fractures not visible without using the magnetic viewing plastic.

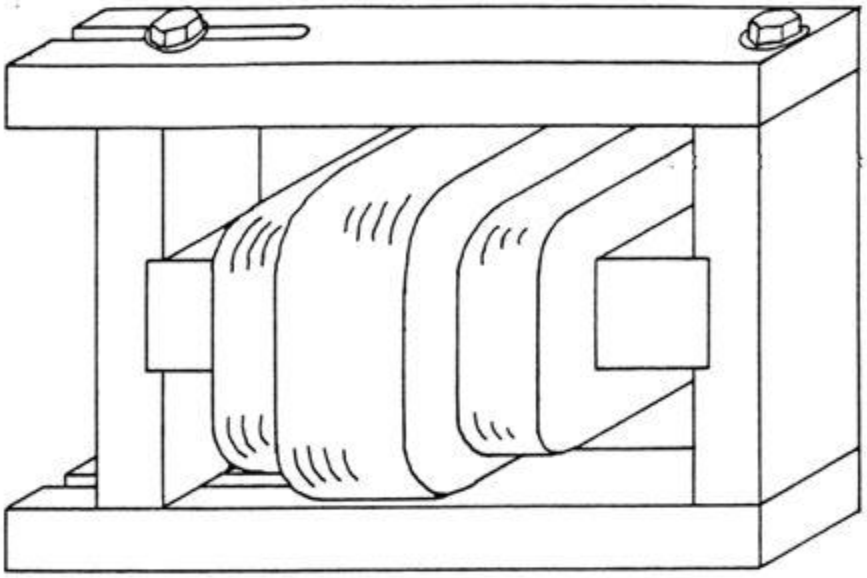
The slabs were also sensitive to shock or outside stimulus which would kill the programmed effect and necessitate the magnet being reprogrammed.

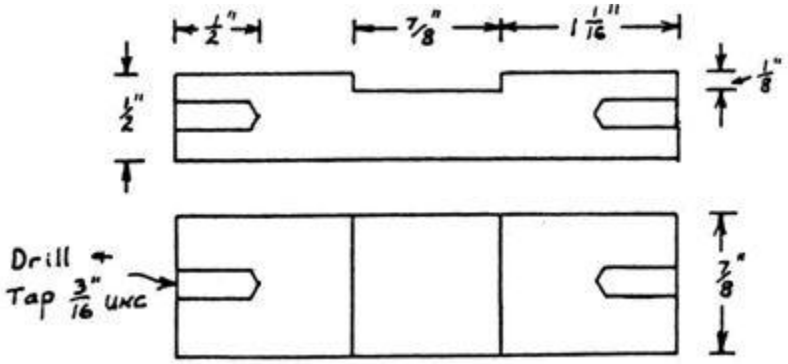
Luco

Diagrams, Photographs & Video

Ashley Gray's Diagrams:



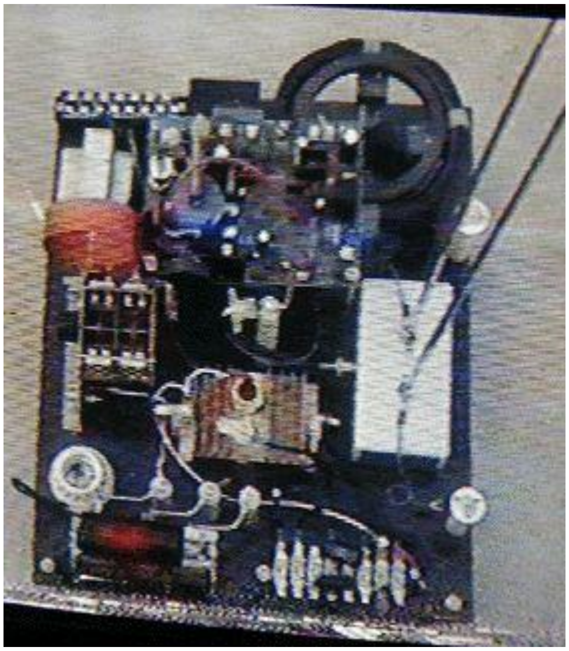




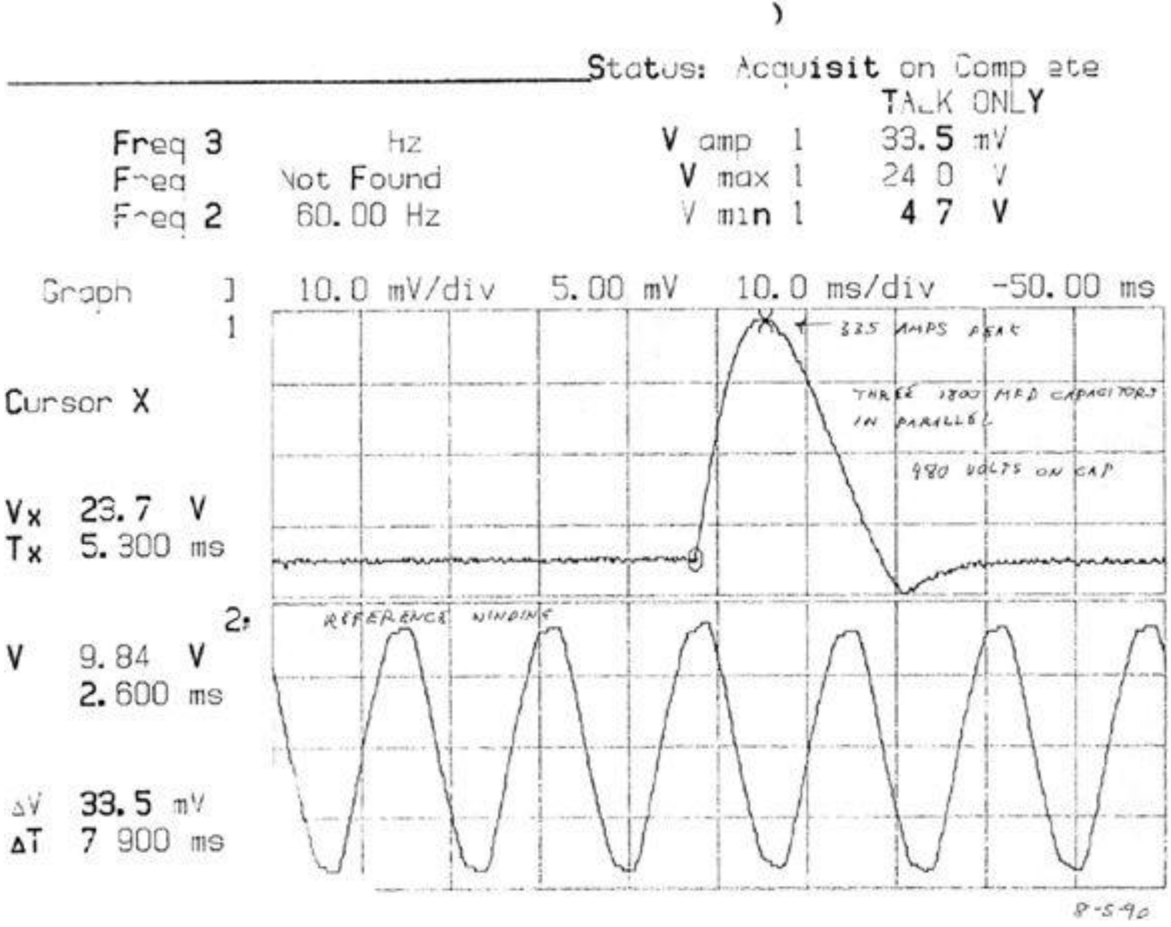
Static Space Quanta Modulator MK1

SCALE: Full Size
APPROVED BY:
DRAWN BY A.J.G.
DATE: 22-03-86
REVISED
DRAWING NUMBER 1

Post-Conditioner:



Conditioning:



```
Status: Acquisition Complete
                          TALK ONLY
Freq 3           Hz          V amp 1    33.5 mV
Freq        Not Found        V max 1    24 0  V
Freq 2     60.00 Hz          V min 1     4 7  V

Graph  1   10.0 mV/div   5.00 mV   10.0 ms/div   -50.00 ms
       1

Cursor X

Vx   23.7  V
Tx   5.300 ms

V    9.84  V
     2.600 ms

ΔV   33.5 mV
ΔT   7 900 ms
```

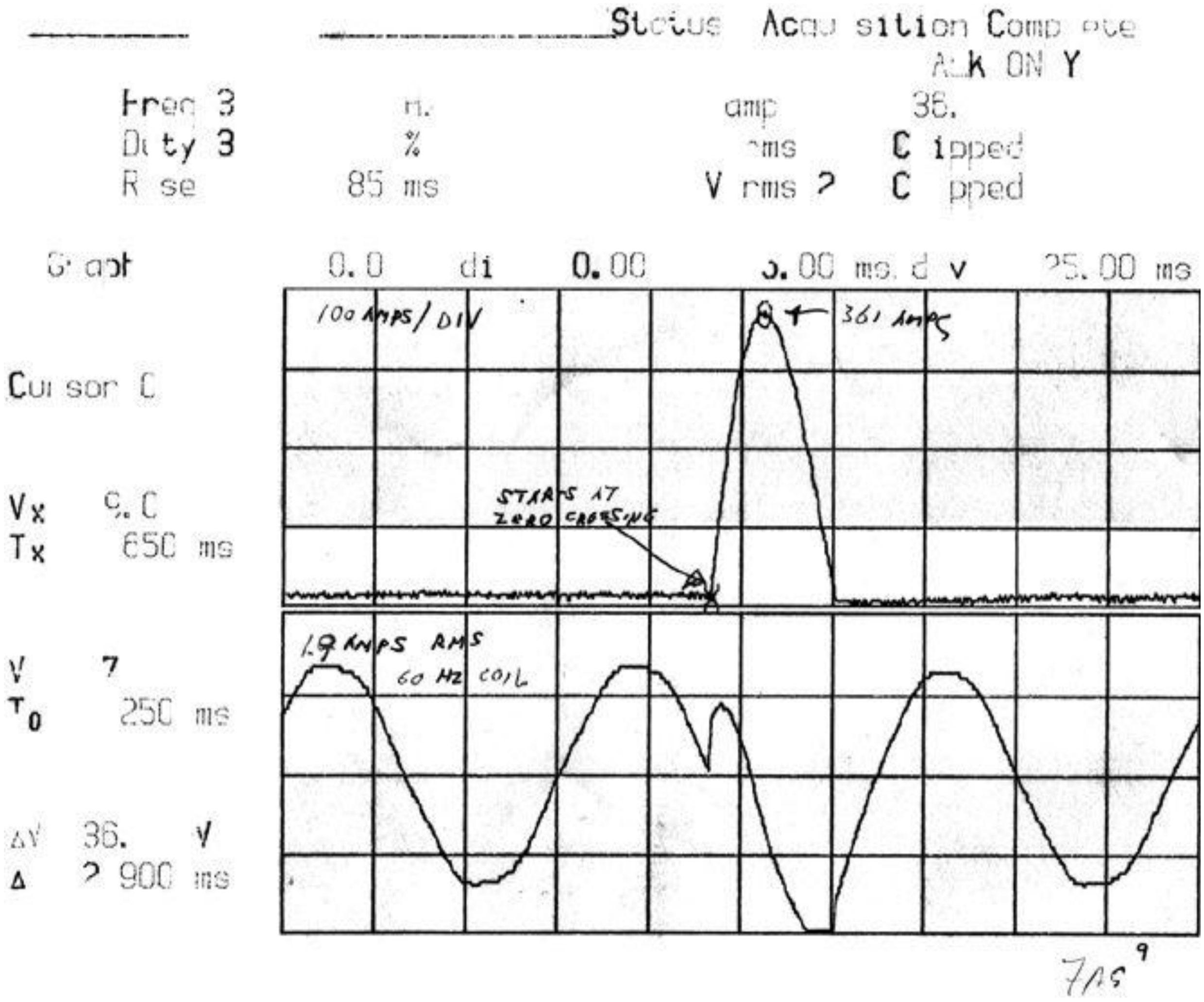
335 AMPS PEAK

THREE 1800 MFD CAPACITORS IN PARALLEL

980 VOLTS ON CAP

REFERENCE WINDING

8-5-90



Stœus Acqu sition Comp ete
A_K ON Y

Freq 3 n.
Du ty 3 %
R se 85 ms

amp 36.
ms C ipped
V rms ? C pped

G apt 0.0 di 0.00 ɔ.00 ms d v 25.00 ms

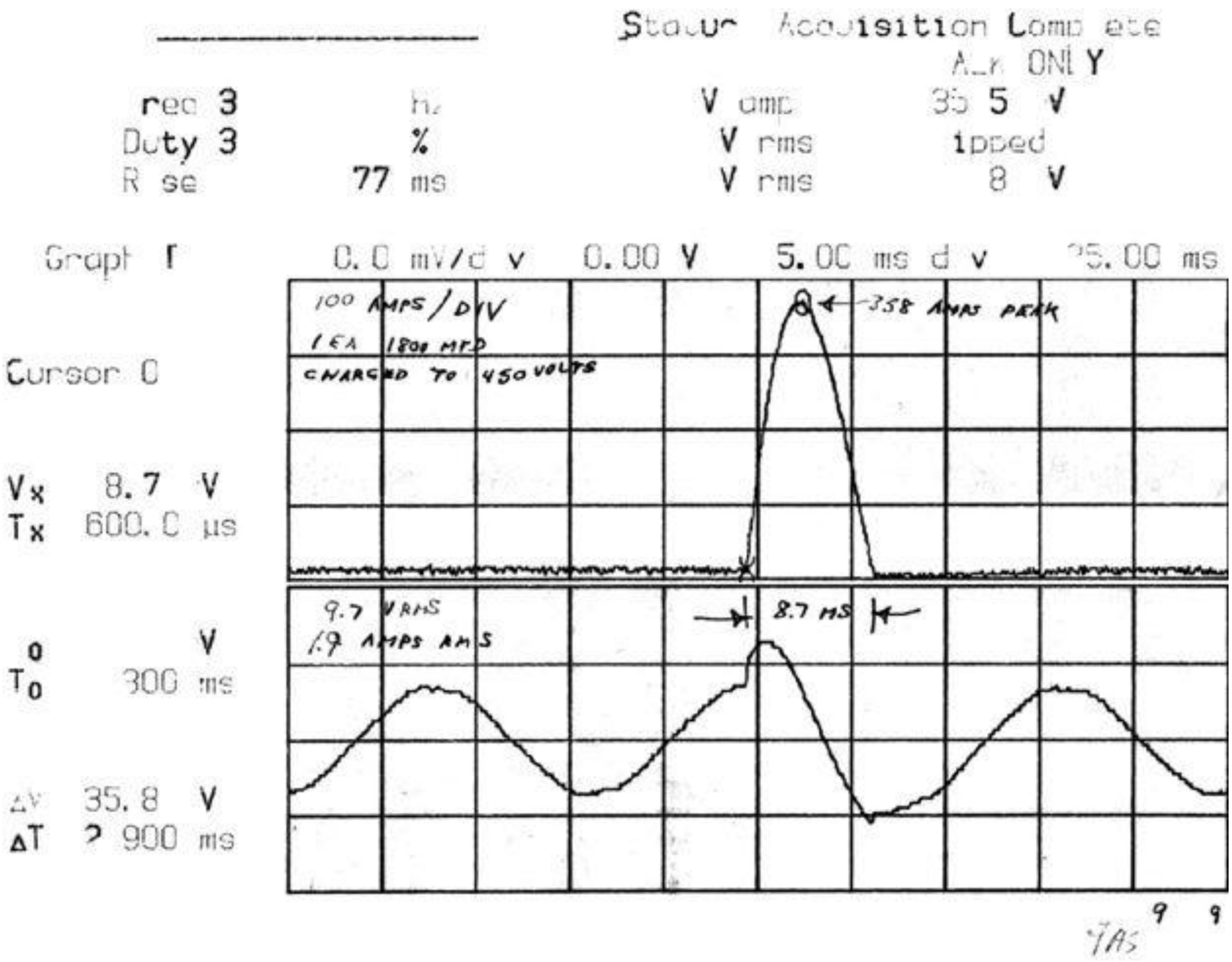
Cu sor C

Vx 9.C
Tx 650 ms

V 7
T0 250 ms

ΔV 36. V
Δ ? 900 ms

7AS 9



Video: [VTA Demonstration with Lamps]

KeelyNet --- 7-13-97

A Possible Source to the VTA

By Jerry Decker

During the year of 1993, I received a call from a fellow by the name of Donny Watson. He lived in Lancaster and had called to talk about various free energy devices, particularly Floyd Sweet's VTA (Vacuum Triode Amplifier).

Donny claimed he had made a device that was producing anomalous amounts of energy, not large quantities, but definitely overunity. This particular unit was a rotary mechanical unit that as I recall was based on collecting back emf. I of course asked to see the device, but Donny was reticent.

We met for lunch and on several other occasions, becoming friends in the process. Though I never saw any machines, I did see Donny's work area and he had a lot o parts and some equipment, but out of all the time I knew him, he showed me nothing.

After several months of periodic discussion and meetings, we had a falling out and I did not hear from Dony again.

At the ISNE conference in Denver, I was surprised to hear that a Donny Watson would be speaking on the Sweet VTA and his work to duplicate it. Turns out it was the same Donny Watson, we became reacquainted and ended up drinking beer late into the night, swapping all kinds of goodies.

During the course o the conference, Donny showed me two magnets, they were both BaFe (barium ferrite) 4" x 6" x 1/2" thick. One was "programmed", the other was not.

Using a piece of magnetic viewing plastic to view the unprogrammed magnet, I could clearly see the south pole on one face, separated at the middle of the ½ inch magnet width by the Bloch wall.

However, in the programmed magnet, the south pole did not stop at the midpoint, but wrapped up onto the face of the north pole section, extending inward from the edge by about 1/4". That is where the Bloch wall had moved!

It was like altering the duty cycle of a square wave, where a normal magnet would be analogous to a S-N relationship of 50:50, the programmed magnet was now something like 70:30. Quite amazing!

Additionally, there was a bubble within the top N pole face, looking much like an air bubble in water covered by plastic. When you put another magnet near the bubble, it moved away, just like pressing on a sheet of plastic to move the captive air bubble.

Donny said the programming did not always take, but that you could just do it again, using the same magnet until it did. Also that some magnets were imperfect, having internal fractures not visible without using the magnetic viewing plastic.

The slabs were also sensitive to shock or outside stimulus which would kill the programmed effect and necessitate the magnet being reprogrammed.

Although I've never seen any working models of the Sweet device from anyone, this observation of the magnets was the closest I've come, so Don Watson has my vote of confidence at this point and he is to be commended for figuring out how to produce the effect but also for sharing this information for other researchers…

New Insights ~

The reason I have written this short paper is because in the last few days, I've been thinking a lot about the VTA and it struck me what must be going on in the programmed slab magnet.

The only way you could have a bubble inside of the N face is if that bubble was of a different polarity, i.e., S, with the bubble edge being another Bloch wall.

You must have a difference to be able to measure anything, homogeneity means harmony, no polarity and equates to zero, though there appears to always be minor fluctuations since nothing is ever truly in balance.

I always thought the trick of the VTA was to cause the Bloch wall to vibrate in the presence of a coil of wire. Anytime you have a change of magnetic polarity near a conductor, you have an induced current, when that polarity changes, the current changes and in effect, pumps the energy out.

Since this artificially created S pole in te form of a moving bubble floating on the N pole face can easily move, it can easily be made to vibrate, possibly over a contained area.

If you place a coil of wire around the bubble, creating a constrained area, you could push the bubble back and forth in a controlled fashion with very small magnetic impulses.

Now, if you could place another coil of wire, in such a way that the bubble edge moves back and forth across this coil, then you will induce a changing current that can be extracted.

If the coil tapping the energy is bifilar, it would not suffer magnetic repulsions due to back emf. If under load, it would work like a homopolar generator, where the dissipation of produced power for any size load would not increase the energy needed to drive the motor driving the generator.

Another key point, I think, is that the bubble must be tuned to the frequency at which it will be driven, say 60 Hz, to get the greatest Q (coupling of energy).

Resonance is thus necessary to be able to tap the extra energy. Much like tapping a swing at precisely the right moment, with precisely enough energy to overcome internal resistances, eventually the inertia of the mass (or energy) will reach a point where other forces can e added and tapped.

Alan Dubla has recently put up a new site dedicated to the Sweet VTA. Alan has achieved what appears to be the same magnetic bubble that Don did.

In closing, there is one other point I'd like to make; when I asked Donny about the programming of the magnet with the 60 Hz wave, he said it could be any frequency. Don also said that once a magnet was programmed, you could touch a scope probe to the magnet and you would see a very weak 60 Hz wave on the screen.

I asked if this could be simply picking up background 60 Hz from the wall wiring and Don insisted it was not. I did not see this test since we were at the conference and he was just describing it. Perhaps he had programmed in another frequency and could see that on the scope, maybe even put the magnet and scope in a Faraday cage. Lots of room for experiment here…

Letter: Tom Bearden to Dr Jon Noring

February 28, 1992

Tom Bearden
2311 Big Cove Road
Huntsville, AL 35801

Dr. Jon Noring
1312 Carlton Place
Livermore, CA 94550

Dear Jon:

Thanks for sending along the extract of comments on the papers. Perhaps I can add a thing or two that will shed a little more light on some of this. First, let's settle the matter of whether this is a scam by persons after money. It isn't. There are no stock plans. Nobody wants any "investment." No one would accept it if it were offered. The inventor presently has a sufficient small income for his small needs. I work every day as a senior engineer, and support myself adequately in that fashion. I'm also retired from the U.S. Army with the rank of Lieutenant Colonel. Also, it is certainly quite true that the burden of proof is fully upon Sweet and me. That proof can only be achieved by independent test and certification by agencies and scientists of impeccable credentials and with no formal connection to the project. Until that is done, we totally accept that what we have said will not be believed, and should not be believed. I will say this: I have absolutely no control of the invention, and absolutely no say in its direction. It is totally Sweet's invention.

If I had had my own fervent wish, formal submission for independent testing and certification (or falsification) by the scientific community would have been accomplished in 1987. Let it also be noted that an inventor has agreements and/or (with other) parties involved; he is often not legally free to do exactly as he might wish. The best we can presently ask is that the readers keep an open but highly skeptical mind, until such independent certification is forthcoming. If it isn't forthcoming, then trash the whole thing in file 13.

To try to address the gist of many of the other comments, let me point out that we are referring to two key mathematical papers: Whittaker 1903 as cited, and Whittaker 1904 as cited. Let me urge all persons who commented on the lack of mathematics to please at least study those two papers intensely. Let me summarize what they actually show, rigorously.

In the first paper, Whittaker shows that, completely at odds with the present scientific view, the electrostatic scalar potential has a totally unsuspected and highly organized bidirectional EM internal structure. It's actually composed of paired EM waves, each going in opposite directions (and in my view, one being the phase conjugate of the other). Further, the bidirectional pairs are phaselocked and in a harmonic sequence. So what the potential is actually composed of is a Fourier-type harmonic expansion, directly coupled with its time-reversed twin set, in a one-to-one ratio, with all the harmonic twin waves phase-locked.

Normally, in electromagnetics one just gives a magnitude to the potential at each point and leaves it at that. However, Whittaker shows that the potential at a point actually encompasses a magnificent, hidden, highly organized flow of EM waves and energy into and out of that point. Although there may be no net EM forcefield at the point, the "hidden interior" energy flow through the point to and from the surrounding space is filled with EM forces and waves in dynamic motion.

This leads to a real quandary in the assumed nature of a scalar potential, in my view: Instead of being a passive or simple scalar sort of thing that just has a convolution magnitude and sometimes an external gradient in that magnitude, it's a new kind of entity that is scalar externally, with gradients between adjacent external points, but at the same time it's totally dynamic, vectorial, and energetically organized "inside."

"Further, it would seem to be in hidden hyperspatial EM communication with every other point in the universe, at least in the simple case. The basic thing, I think, is that Whittaker seems to delocalize the notion of the potential, extending it into hyperspace with respect to its internal EM energy flow. If someone on the net could put that into more precise language, I'd be very grateful.

In my picture of it, as shown by Whittaker the seemingly quite placid scalar potential is an unsuspecting vector EM dynamo inside. In early 1987 I simply took the Whittaker picture of the potential's internal bidirectional EM waves seriously, and realized that these internal hidden EM waves didn't translate electrons in the electron shells of atoms, but instead penetrated to the nucleus directly. That meant that, in simply having a stress potential added to a material, one effectively had "pumping" EM waves connected directly to the atomic nuclei through hyperspace, bypassing the electron shells' usual Faraday shielding interaction.

One can fairly readily build EM wave oppositions in proper harmonic, phase-locked Whittaker fashion, and so one can make and use an EM gradient-free potential construction entirely of bidirectional waves. This construction is such that :

(1) a normal electron-wiggle detector instrument doesn't even "see" it,

(2) the internal wave EM reaches directly to the nucleus and affects it and

(3) it consists of EM "pump" waves in the nonlinear phase conjugate mirror sense.

All that was needed then was to simply extract the standard pumped phase conjugate mirror equations from nonlinear optics and apply them to this "potentialized" or "Whittaker-pumped" nucleus of the atom. That mean that the nucleus should now be a pumped phase conjugate mirror. However, it still needs one small thing added. Sweet did one additional thing: he superposed a 60-Hz modulation on the envelope of the Whittaker bidirectional waveset.

In other words, the external amplitude of the artificially constructed stress potential was oscillated at 60 Hz. [Note that the external amplitude of the potential is what is in our 3-space; the internal Whittaker EM biwaves are BEYOND 3-space. The nucleus is a hyperspatial or higher topological entity when the Whittaker structures of its potentials are taken into account.]

Sweet personally discovered the activation procedure (which he still holds proprietary) for causing this 60-Hz oscillation to be taken up and self-sustained by the barium nucleus (we assume that it's the barium nucleus involved, because it won't work with any other kind of magnet except a barium ferrite magnet). Self- oscillation of barium compounds is well-known in the phase conjugate mirror optical literature. However, most of the papers I've been able to find on self-pumping mirrors have achieved the self-pumping only at optical frequencies.

I've not been able to find anything else at ELF self- oscillation frequencies. I will say that, if Sweet's 6-lb unit is not in the self-oscillation (activated, or self-pumping) condition, you won't get a microwatt out of it, no matter what you do! If it's in the self-oscillation condition but at essentially "normal" nuclear potential, you will only get a few watts out, say, something like six watts.

Sweet increased the nuclear potential and its 60-Hz oscillation, trapping it in the barium nucleus also as part of the activation, whereupon much greater electrical power is extractable from the device. He also worked out the device design so that its objective output voltage was 120 volts, for an input voltage of 10 volts (at 33 microamps). This small 1/3 milliwatt 60 Hz input corresponds to the signal wave in PPCM theory.

The entire device is, in my view, just a special self-pumped phase conjugate mirror, precisely like what is already in the standard literature, self-pumping and all. It's just self-pumped at ELF frequencies, and in a very special manner. It is being fed by self-oscillating hidden EM biwave (pumpwave) energy directly from the surrounding vacuum. [The EM energy of the vacuum intercommunicates internally through the hyperspatial Whittaker channels of the vacuum. The gradient in the potential magnitude represents the EM energy entering our 3-space by local scalar interferometry.]

I also quoted a reference that shows that the local vacuum immediately around a nucleus is structured by the nucleus and can be considered and treated as a special sort of semiconductor. One can visualize, then, that the 60-Hz trapped self-oscillation is between that local semiconductor vacuum and the potentialized barium nucleus. In other words, in the self-oscillating nuclear potential it is both the local vacuum and the nucleus that are oscillating, at 180 degrees phase from each other. That means that there is a rhythmic inflow and outflow of potential (Whittaker biwaves) envelope magnitude gradient, to and from the nucleus, exchanged to and from the local semiconductor vacuum. Note what we're talking about.

You've got to get the hyperspatial EM energy exchange of the vacuum "gated" or" shifted" into our 3-space, from hyperspace. Whittaker's 1904 paper can be interpreted as showing that (1) the gradient in the potential represents the 3-space aspect, and (2) any such potential gradient in 3-space is produced by scalar interferometry (interference of the hyperspatial vector EM wave interiors of scalar potentials.)

So Sweet's 60-Hz modulation of the nuclear potential's amplitude represents a 3-space oscillating flow of EM vector energy, in and out of the nucleus from the surrounding semiconductor vacuum. If you properly introduce a signal wave to that "activated" or self- pumped nucleus (once it's got a 3-space oscillating EM vector flow), then by standard textbook theory you are going to get out up to all the energy in the pump waves, coming forth from the "nucleus-mirror" as an amplified phase conjugate replica (PCR) of the small signal wave input.

By the standard distortion correction theorem, that amplified PCR wave will travel back along the path taken by the signal wave. In other words, you've got organized EM energy coming out of the nuclei as a coherent EM wave, through the electron shells, into the material lattice, and on out of there into the external circuit. At that point, one simply taps onto it (e.g., by magnetic induction), and you can extract and gate the amplified energy wherever you wish in the external circuit. Note that the 60-Hz self-oscillation energy comes in from the local vacuum to the nucleus, on the inflow or "intake" cycle. If you gate some of it on out of the nucleus externally, instead of letting it flow back to the local semiconductor vacuum, the adjacent vacuum surrounding the semiconductor just promptly replenishes the local vacuum potential. It has to do so, because of the nonlocal hyperspatial EM energy flow in the Whittaker structure of the potential in the first place. You can draw EM energy out of those internal EM waves in the Whittaker structure of the potential, and the electrical charges establishing that potential will continue to "pump out" virtual photons and replenish the potential.

It can be seen that the potentials between the self-pumping nuclei are self-cohering (in their internal EM) throughout the mirror material by what is called "self-targeting," but that is another story too long to detail here. The second (1904) Whittaker paper I cited is also quite revealing. Here's what it shows. Rigorously, you can replace all of classical forcefield EM with scalar potential interferometry. Period. Note that this paper actually incorporates the Aharonov-Bohm effect, decades before Aharonov and Bohm's seminal 1959 paper. It also drastically extends it, for it is dealing with macroscopic effects, not just mesoscopic. Also, please note that scalar interferometry is not an oxymoron,in spite of being so labeled by one eminent scientist.

If you realize that the scalar potential is totally vectorial in its Whittaker internal composition, and comprised of multiple EM waves, then when one interferes two scalar EM potentials, one is simply doing multiple wave interferometry simultaneously. It's perfectly good "wave" interferometry; it's just a whole bunch of it at once. And the wave interference actually connects hyperspace EM waves with 3-space EM waves. The hyperspatial EM wave interference creates 3-space EM potential gradients (forcefields), including both statics and dynamics. To sum up my view of the Whittaker papers, here's what they add to physics:

(1) They add a second and completely new kind of electromagnetics, a hidden hyperspatial EM wave communication inside the scalar potential. Since the magnitude of the scalar potential from

a single point charge does not reach zero until an infinite radial distance is reached, then each point charge communicates electromagnetically with each other point in the universe, through the hidden Whittaker EM hyperspace channel. It communicates via hidden (hyperspatial) EM waves that a normal EM detector does not even see.

(2) The papers allow replacing all notions of external [3- space] EM force fields, waves, etc. with scalar interferometry of potentials [hyperspatial EM wave interferometry].

(3) by adding the "internal" EM energy and its hyperspatial "hidden variable" communication, the two papers do in fact extend each of the three disciplines: classical EM, QM,and general relativity.

Indeed, they force consideration of a sort of "action at a distance," where by scalar interferometry the local vacuum potential and the local spacetime itself are altered and interact with the system in unexpected manners.

Since the Whittaker internal EM energy extension set is the same in each case, it is my view that adding the Whittaker internal EM does unify the three extended disciplines. Note that it does not change the three present subsets. We might also ask the following:

Can anyone show any paper in the literature, other than the Whittaker work and the other two recent papers I cited, that deals with this internal organized EM inside the scalar potential? If so, I've personally been unable to find it, and would very much appreciate the reference.

Does there exist any other paper in the literature that treats the atomic nucleus as a pumped phase conjugate mirror? I would very much appreciate the references, if there are any.

Are there any papers at all in the literature, where research has been conducted in actually making the Whittaker-type of simultaneous wave/antiwave structure as an artificial scalar potential, in beams, and performing scalar beam interferometry with it on materials and systems at a distance __ e.g., say at three feet in the laboratory? If so, I'd again very much appreciate the references.

It is my strong feeling that we must get such things looked into by the universities and by sharp physicists and graduate students. The Whittaker approach and the concept of using the nucleus of the atom as a pumped phase conjugate mirror that one can externally engineer electromagnetically, do seem to lead to some startling things on the bench. But presently the phenomenology is so completely unknown and unexpected that I fear we may never have a true science and technology here unless university-level work is done on it. Indeed, it's going to take some good theorists and some good experimentalists both.

I might add that Sweet is incorporating the Whittaker theory into his EM theory of the device, and I expect him to publish that in the future for peer review and examination. His wife died recently, however, and so that part of the effort has been setback for a time. Sweet is a good theorist (I am not), and he is an especially good magnetics engineer of high caliber. He is also, in my opinion, a genius on the experimental bench.

*** He has other highly unusual EM inventions which may *** receive more publicity in the future.

I believe that, for the quaternions, the best way to describe EM expressed in quaternions (or better yet, in Clifford algebra) is to note that the EM thus expressed has a higher topology. It seems that you can get EM effects in the higher topology that a rigorous orthodox EM analysis will never reveal or appreciate.

A very interesting reference to check in this respect --- by a highly capable scientist, and with all the mathematics --- is T.W. Barrett, "Tesla's nonlinear oscillator-shuttle-circuit (OSC) theory," *Annales de la Fondation Louis de Broglie*, 16(1), 1991,p. 23-41.

Indeed, I'm attracted to the notion that my own concept of the nucleus as a pumped phase conjugate mirror could also possibly be expressed in terms of Barrett's OSC exposition. This is particularly attractive because Barrett points out that in the higher topology the nonlinear optics effects are achievable by circuits and devices themselves, without the presence of laser- matter interactions as such. He also cites a document number 225395, 1988, U.S. Patent Office, where the OSC theory was originally disclosed.

The complete mathematics for decomposition of the electrostatic scalar potential into bidirectional EM wave sets in harmonic phase- locked series is in E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355.

The complete mathematical proof that classical EM can be completely replaced with scalar potential interferometry is in E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," *Proceedings of the London Mathematical Society*, Series 2, Vol. 1, 1904, p. 367-372.

I believe Whittaker actually orally delivered both papers in 1903. Review and commentary from the network scientists on the two Whittaker papers, and on the significance of the Whittaker papers or lack of it, would be most deeply appreciated. Particularly desired would be the results of any experiments performed in scalar potential interferometry, at a mild distance (say, three feet) where each of the two interfering potentials is artificially constructed of multiple phase-locked harmonics and their true phase conjugate waves in one-to-one magnitude ratio. We accent that at least one harmonic interval, and preferably more than that, are essential.

Sincerely,

Tom Bearden

Progress Report on the Sweet Vacuum Triode

T. E. Bearden

Updated Jan. 29, 1992

Phase I Operation Completed

In 1991 we ended Phase I, and began the opening round of Phase II of our decades-long operation. Phase I was to alert the free nations to the dangers of Soviet scalar EM weapons, and the necessity of countering them. That phase has been successfully completed. There are now three other nations --- not hostile to the U.S. --- that have developed and deployed scalar EM weaponry. The Soviets/KGB are soundly checked by these three nations, with regards to scalar EM weaponry.

Phase II Operation Begun

The goal of the phase II operation is to get cheap, clean energy from the vacuum, obtain antigravity, and develop scalar EM healing of notorious diseases such as cancer, leukemia, AIDS, etc. In this phase we are now publishing papers in the orthodox literature that carry the message. Our target is the bright young graduate students and postdoctoral candidates who are becoming increasingly curious in this area. We will try to get as many of these interested as possible. The idea is to have about 100 "seed cells", in major universities, so that these young tigers do the necessary phenomenology experiments and produce the necessary theory extensions. If we can reach that number of seed cells, then those young Turks will turn over the present physics. That Phase II operation has begun.

Two Fundamental Papers Published

For example, in mid-1991 we gave (in absentia) two fundamental papers to a very large symposium (IECEC '91) in the Boston area. The symposium was sponsored by IEEE, AIAA, and many of the other leading technical societies of the U.S. The two papers are published in the Proceedings by the American Nuclear Society.[1,2]

One of these papers [1] tells what is wrong with quantum mechanics, electromagnetics, and general relativity - that is, what actually prevents their unification. It also tells what has to be done to unify them. I emphasize that the thesis in this paper is testable on the laboratory bench; it isn't just conjecture.

The second paper [2] is rather unique, to say the least. In it I openly released the basic universal mechanism that is capable of directly tapping the potential energy of the vacuum, electromagnetically. That's a secret eventually worth billions of dollars; I freely gave it to everyone. I discovered the theoretical mechanism, so it was mine to give. The paper reported on Floyd Sweet's (my colleague for several years) vacuum triode which successfully taps the vacuum's virtual photon flux energy to produce 500 watts of time-reversed electrical power, with only 330 microwatts of normal power input. That device has been in existence since 1987 or earlier.

The Fundamental Mechanism Is Proven

There are several hundred papers in the nonlinear optics literature that prove that the fundamental pumped phase conjugate mirror (PPCM) mechanism works, in the macroscopic world. I seem to have been (in 1986/87) the first person to openly treat the nucleus of the atom as a PPCM.

In a proprietary 1986 draft and later 1987 paper given to Sweet, I produced the basic theory of how Sweet's vacuum triode device (which then was producing 6 watts output) was tapping the vacuum energy. To do so, I treated the Whittaker bidirectional EM wave components of a scalar EM potential --- introduced onto the nucleus --- as a set of wave/antiwave pairs or pump waves.

This application simply uses the internal scalar potential's internal structuring as clearly established by Whittaker in 1903.[3]

With the internal Whittaker wave/antiwave structure, one can establish a self-oscillation (self-pumping) on the barium nucleus, in and of the virtual photon flux (VPF) exchange between the nucleus and its immediately surrounding vacuum.[4]

When that is successfully done, the material containing the barium (in Sweet's case, barium ferrite magnets) is activated. That is, VPF exchange energy is rhythmically flowing into the barium nucleus and back out again in a 60 Hz wave --- as a wave of pure VPF stress potential; a pure scalar EM wave, which is composed of (and can be decomposed into) phase-locked AM oscillations of the set of Whittaker biwaves composing the potential.

With this Whittaker decomposition, the self-oscillating barium nucleus is then a self-pumped phase conjugate mirror. Note that this "nucleus as a pumped phase conjugate mirror" approach is a universal scheme for tapping the trapped energy in a massless scalar EM potential in the vacuum, without depleting the potential.

The potential in the vacuum is a function of vacuum VPF activity; the potential is continually replenished by the vacuum itself. The EM energy trapped inside the potential can be tapped forever, if the potential is not bled off by translating electrons (or other charged particles).

Then all that remains to be done to tap this vacuum-furnished "pumping" energy, is to utilize standard 4-wave mixing theory from nonlinear optics, and introduce a small signal wave input. By standard textbook theory, up to all the energy in the pump waves will then be emitted by the nucleus as a phase conjugate replica (PCR) (time-reversed replica) of the signal wave input.

In other words, an amplified EM energy wave --- in this case, 60 Hz --- will come from the self-pumped nuclei and will backtrack the path taken by the signal wave, in accordance with the so-called distortion correction theorem of orthodox nonlinear optics.[5]

In this fashion, the energy in a potential established in vacuum can be directly tapped, taken from the VPF exchange with the nucleus, and gated out of the atom and into the external circuit, to power an external load.

The Secret of Overunity EM Devices

THIS "NUCLEUS AS A PUMPED PHASE CONJUGATE MIRROR" MECHANISM IS THE FUNDAMENTAL SECRET OF ALL LEGITIMATE OVER-UNITY DEVICES THAT TAP VACUUM ENERGY.

The tapping device is not a closed system, but is open to the flow of energy from the vacuum to the nuclei and back. All systems everywhere are open to this in-and-out VPF flux exchange anyway. Normally, however, the two VPF flows --- in and out --- are equal and opposite, and so the energy exchange between vacuum and nucleus is in equilibrium. In that case, none of the VPF exchange energy is gated out to the external circuit.

In the "activated" case, however, the two VPF flows (between the nucleus and the vacuum) are not equal, because part of the flow energy that accumulates in the in-surge into the nucleus is gated out of the atom and into the external circuit.

Hence the vacuum/nucleus flux exchange system is not locally in equilibrium, because part of the in-flow is being gated by 4-wave mixing accomplished in the PPCM barium nuclei, into forming an organized PCR wave, which in turn goes on out of the atom instead of back to the vacuum. Any local vacuum energy extracted is just instantly replaced by the surrounding vacuum - just as a raging ocean instantly refills the hole left in dipping out a spoonful of water.

So in the self-oscillating PPCM nucleus, part of the vacuum influx energy is gated into an organized phase conjugate replica (PCR) wave, instead of simply being flux-exchanged back to the local vacuum. This amplified PCR wave backtracks the path previously taken by the input 60 Hz signal wave, and thus proceeds out of the vacuum-pumped nuclei, through the atom's electron shells, into and through the material lattice, and arrives in the outer circuit, which is connected to the external electrical load.

The device thus powers the external load directly off the energy organized and gated from the local vacua surrounding the excited, activated, self-pumped barium nuclei. Floyd Sweet's Vacuum Triode

In his second vacuum triode, Sweet obtained 500 watts of negative electrical power out (at 60 Hz and 120 volts), with an input (signal wave, in nonlinear optical PPCM terminology) of only 330 microwatts (10 volts, 33 x 10^-6 amps) from a small 60 Hz oscillator. That's about a 1,500,000 power gain. Not too bad at all.

Sweet later "close-looped" the device, tapping off a wee bit of the output, and using it as the rigidly clamped positive-feedback input. So his later devices put out 500 watts, directly from the vacuum, without any external input at all.

Sweet has also built devices having 1,000 watt output and 5,000 watt output. The devices also are solid state, with no moving parts.

A nominal Sweet device outputs 1,000 watts of time-reversed (PCR) EM power at 60 Hz and 120 volts. It weighs 6 pounds, and can be rigged to simultaneously produce antigravity, while it is producing its negative power.

However, there are still some serious problems with stability, etc. Also, there are serious legal problems, and in fact the entire thing has been in litigation. It may be that nothing will ever be possible with this device, because of the horrendous legal entanglements. But the device is real, it works (albeit it is just a laboratory demonstration device, and not at all a production-ready model). It proves the principles, and the report is now in the standard literature.

World's First Antigravity Success

Also, to prove the scalar EM interpretation of gravity and antigravity, at my urgent request in 1987, Sweet specially rigged the device for antigravity production. In the cited paper we report on the highly successful result.

The 6-lb. weight of the object was reduced in periodic stages by 90%, on a scale on the lab bench, in a totally controlled, smooth, slow, sustained experiment without transients or sudden surges, jerks, etc. At the same time, the device was steadily producing negative electrical power.

In fact, the method of producing antigravity in a "rigged" unit is simply to force it to process more negative power through the nucleus. Gravitational energy is negative energy, and gravitational power is negative power, as is well known.

It follows that to first order, antigravity can be regarded as simply the outputting or ejecting of negative energy from the atomic nucleus, through the electron shells and into an external load, rather than return of the negative VPF energy back to the vacuum from the nucleus.

The curve is reproduced in the paper, and printed in the proceedings. I had qualitatively predicted the results, prior to the experiment.

What is not printed in the proceedings is that, with another more powerful model, Sweet has actually fully levitated the entire 6-lb unit, and "flown" it above the bench, via this approach to antigravity.

So the scalar EM theory works. It's still tricky, and we're just at the stage that normal EM went through with "cat fur, glass rods, and pith balls." But slowly we're getting there. Still, we desperately need to develop good instrumentation for detecting (1) the absolute scalar potential, including its magnitude, and (2) the exact Whittaker bidirectional EM wave harmonic structure of the scalar potential. We know how to approach that problem, but it will be quite expensive, and funding to do that has simply never been available.

"Energy" Is Presently Incorrectly Defined

To illustrate just how poorly some of the foundations of normal science (including physics) are known, let me point out that the present definition of energy is totally wrong. Now there's a real attention grabber of a statement! Can I prove it? Let's see.

The present "definition" of energy in science is usually stated something like this. "Energy is the capacity to do work." Well, that statement happens to be totally, hopelessly false. It isn't even correct logic. Here's why.

What is work? Ultimately, work is the scattering (disordering) of energy. We can always resort to calorimetry, e.g., and determine the warming of a solution (such as water) by a mechanically-powered paddlewheel, to convert mechanical energy to heat energy, etc. But in QM, all mechanical forces are generated by the exchange of virtual photons, so even mechanical force is electromagnetic at base. Hence mechanical force times distance is also EM-generated, at its causative base. Eventually, mechanical and electromagnetic work involves the scattering of EM energy.

So substituting for the term "work" in the accepted definition of energy, the standard definition is really this: "Energy is the (capacity to do) scattering of energy."[6] That's logically contradictory. It says that energy is just its own scattering! And that's nonsense.

Try it on the notion of a fishhook. I can truthfully state: "A fishhook can be used to catch fish." That's perfectly okay. However, we cannot accurately define a fishhook as "A fishhook IS the capacity to catch fish." That's a non sequitur. We can say, accurately, that "a fishhook HAS the (innate) capacity to catch fish," and that is accurate. That's just a statement about fishhooks, it is not a definition. But we cannot say that "a fishhook IS the capacity to catch fish." Indeed, a fishhook IS a bent piece of wire, where one end is usually curved with a barb on the tip.

Similarly, we can say that "energy HAS the capacity to do work," and that is logically accurate. In that form, it's just a statement of one of the things that energy can be used to do. One can, by scattering the energy, do work --- since work is just the scattering of energy in the first place. But one cannot say that "Energy IS the capacity to do work." A thing cannot be defined as just its own scattering!

I find it remarkable --- even astounding --- that generations of scientists and engineers have apparently failed to notice this simple, elementary fact. Could it be that all the physicists and engineers are presently wrong in their notion as to precisely what energy IS? If so, then (one might say) what, pray tell, is it? What is energy anyway?

A Fundamental Redefinition of Energy

Here's the precise definition: ENERGY IS ANY ORDERING, EITHER STATIC OR DYNAMIC, IN THE VIRTUAL PARTICLE FLUX OF VACUUM. Period. Note that energy overall refers to the flux of any and all kinds of virtual particles in the vacuum. It can be any kind of ordering imposed in or on any or some or all of those particle fluxes.

But when you put an adjective modifier in front of the word "energy", then you have selected a particular type of flux. In that case you have to discriminate the type of quantum particle of the field, comprising the flux that is being referred to. Like the following:

Definition of Electromagnetic Energy

Electromagnetic energy is any ordering, either static or dynamic, in the virtual photon flux of vacuum. In other words, for a field energy, one selects only the type of particle in the VPF that is the quantum particle of that field.

Let's continue: Nowhere in physics --- in all of physics --- does there appear a legitimate definition of the electrostatic scalar potential. The normal "definition" utilized or advanced is a prescription for calculating its magnitude. I could not find a single physicist or electrical engineer who could accurately define it. So I went to QM and dug out what it is, myself. Let's continue:

Definitions of Some Types of Potentials

A potential is any ordering, either static or dynamic or combination thereof, in the virtual particle flux of vacuum.

Note that, according to this definition, a potential is pure energy, a priori. But we must be careful. Because of the nature of the virtual particle flux comprising it, the potential is a collection of individual virtual energies --- a collection of the individual energies of a host of individually moving virtual particles. Each particle is still almost totally separate from each other, most of the time. In other words, as an informal analogy, potential is a sort of mostly disintegrated energy, which only has just a touch of integration, enough to allow it to be referred to as a single "collection" or "ordering."

A scalar potential is any static (stationary) ordering in the virtual particle flux of vacuum. A vector potential is any dynamic (nonstationary) ordering in the virtual particle flux of vacuum. So scalar potentials and vector potentials are simply different subsets of the energy domain.

An electrostatic scalar potential is any static (stationary) ordering in the virtual photon flux of vacuum. And so on.

Now those are all precise definitions. To the best of my knowledge, they have not previously appeared in physics.

Internal Wave Structure of A Scalar Potential

However, with respect to the electrostatic scalar potential, one still has a conceptual problem. Any photon in the vacuum must of necessity be moving at an average velocity of c, it would seem. So how does one have a "stationary" ordering of these extremely fast photons? In other words, how do you catch and "hold stationary" a particle that's moving at luminal velocity, and have it still continuing to move that fast?

It's simply a special case of a kind of "standing wave" stationary solution by another name. Indeed, Whittaker decomposes the scalar potential into bidirectional pairs (in a harmonic series) of EM waves.[7] In other words, a scalar electrostatic potential internally consists of --- and is composed of --- paired EM waves, passing through each other, in pairs in a harmonic set. Sort of like a Fourier expansion set of harmonic waves, coupled with its phase conjugate set that is present at the same time. Notice that the harmonic wavepairs are phase-locked in frequency and time.

Hence this structure establishes an organized, standing, stationary spatiotemporal lattice directly in the vacuum potential. It is strongly pointed out that this represents a local organization and structuring of spacetime itself.

Further, a given potential created by our circuits is a change in the trapped local EM energy of the vacuum. It therefore represents a local curvature of spacetime, and this local curvature is Whittaker-structured.

Gravitons, Photons, and Antiphotons

So we look at one pair of Whittaker waves, at its wave and antiwave components. We point out that the antiwave is a true phase conjugate (time-reversal) twin of the wave. In that wave/antiwave pair, photons in the wave are moving forward (say, from left to right) in one direction, and antiphotons in the antiwave are moving back (say, from right to left). In other words, photons and antiphotons are present and constantly meeting each other in each wave/antiwave pair.

Further, the antiwave is precisely coupled to the wave by phase conjugation. This requires that photons and antiphotons are also continually and precisely coupling - which they can do and will do if one is a precise phase conjugate of the other --- and decoupling. But when momentarily coupled, the photon/antiphoton pair have helicity 2. In other words, at that moment the paired system (couple) is stationary. As a crude visual model, each may be visualized as "whirling around" (orbiting) the other momentarily, so that each has tangential velocity c, but oppositely directed, producing a spin-2 system that is momentarily "trapped" and not translating.[8] In this fashion a photon may be "spatially trapped" in a graviton system, but the individual photon may still be moving with tangential velocity c, even though the graviton system is stationary.

Thus what we have in the Whittaker bidirectional wave structure of the scalar EM potential is the continual formation and dissolution of stationary spin-2 gravitons, with photons and antiphotons continually entering and exiting each coupling position. The gravitons resulting from the photon coupling/uncoupling are statistical, for they are continually being created and destroyed.

Those statistical gravitons are what comprise the "electrostatic scalar potential," and constitute the convolution of the locally trapped photons. Consequently, the local EM energy trapped in the scalar EM potential exists in that form.

Note that, because of the arrangement of the photon/antiphoton pairs into a harmonic series, all the EM waves in the entire Whittaker set are phase-locked, as are the gravitons. This means that the phase-locked graviton sets represent an ordered spacetime graviton lattice --- containing EM energy ordered both dynamically and statically in frequency, energy, space, and time.

So, the scalar electrostatic potential is actually a hidden graviton latticing organization of local spacetime itself.

Photon Interaction And Newton's Third Law

It follows that, in photon interactions, normally we actually have a bust-up of a graviton, so that we have two photon interactions,[9] not one, as follows: (1) the freed forward-time photon interacts with the shell electrons of the atom, which is the reaction contained in the textbooks, and (2) the freed time-reversed antiphoton interacts with the nucleus of the atom to produce Newton's third law reaction force.[10]

The Scalar Potential Is Gravitational

Now that we know that the scalar potential is comprised of gravitons, we can understand why the potential is gravitational (as is well-known in general relativity.)[11] We also realize something even more important: We realize precisely how gravitational potential is made and sustained electromagnetically. In other words, we now understand electrogravitation. Note that, so far, we have described a very "linear" condition in spacetime, where the local spacetime from one point to its neighboring points does not change in the photon coupling constituency of the graviton lattice. Such a spacetime is locally flat.

Curved and Flat Local Spacetimes

However, it follows that we also should be able to do some nonlinear things to make the average photon/antiphoton coupling differ from spin-2. In that case, we can have some multiple photon couplings greater than helicity 2. We can also have the occasional failure of photon and antiphoton to couple, so that the average coupling is less than helicity 2.

Because of the continual creation and annihilation of gravitons, in describing "the" graviton we are speaking of the average photon coupling over a finite time, where the average smooths and becomes a constant value, and where by "photon" we refer to both photons and antiphotons.

If so, we then have this characteristic: If the average photon coupling in the vacuum EM potential is spin-2, then that's the "linear" coupling case, and the local spacetime is flat (uncurved). If the average coupling is less than spin-2, then the local spacetime is curved in one direction. It is deficient in photons for its preferred coupling, so it acts as a photon sink, or EM energy sink. So to speak, such a potential/vacuum/spacetime has "unfilled photon holes --- sort of a slightly depleted "Dirac photon sea." On the other hand, if the average coupling is greater than spin-2, the local spacetime is curved in the opposite direction. It has a surplus of photons, so it acts as a photon source --- in other words, as an EM energy source. In this case, it is a sort of "excited Dirac photon sea."

Just as the spacetime/vacuum possesses a negative energy sea of Dirac electrons, so it possesses a negative energy sea of photons. When it's flat, all the negative energy "holes" are filled with virtual photons. When it's curved in one direction, some of the holes are empty, and the local spacetime will "absorb" some available photons. When it's curved in the other direction, an excess of virtual photons/antiphotons are crammed in there in excess of the holes, so the spacetime will emit photons and serve as an energy source.

Remember that spacetime/vacuum to first order is just scalar potential. We can have a negative or a positive potential, as a delta compared to the normal or ambient vacuum potential. And when we speak of curved spacetime, we are just talking about a surplus or shortage of trapped photon energy coupling density to comprise the local vacuum/potential.

Potential, Vacuum, Spacetime, and Energy

The four words, potential, vacuum, spacetime, and static energy turn out to be essentially identities. Also, all of them have a dynamic substructure. That is, a vacuum per se is structured/ordered, since it is essentially a scalar potential. To first order, it is an electrostatic scalar EM potential, in the manner shown by Whittaker to have an internal bidirectional EM wave harmonic structure.

A spacetime is internally structured; this provides direct access to "hyperspace" engineering, since the "internal" part of spacetime is hyperspatial, mathematically. But with the Whittaker approach, it is straightforward to directly engineer this internal hyperspace aspect.

The ultimate engineering is hyperspatial engineering, vacuum engineering, engineering of potentials, engineering of vacuum engines, energizing the vacuum, energizing spacetime, structuring the local curvature of spacetime, engineering the internal electromagnetics, etc. All these things are identically the same thing. They are all part of scalar electromagnetics.

Interference of vacua/potentials generates what we call EM waves in vacuum.[12] These waves may move either time-forward or time- reversed (antiwaves). You can also engineer this direct scalar interferometry to produce, stabilize, and control EM energy, in static or dynamic form, as Whittaker showed in 1904, even at a distance.[13]

Overunity Condition: Tapping The Potential

So, as you might surmise, in scalar EM we can curve local spacetime, and use it as either a source or a sink of EM energy. Once we pay to move a set of charges so as to establish a particular excitation and structure to the local or distant spacetime, so long as we do not allow the depletion of the charges, they continue to "pump" virtual photons (that is what electric charge is, according to QM) and sustain that particular active/excited/ energetic spacetime/vacuum/potential. If virtual EM photon energy is removed from that excited/activated vacuum region, the surrounding activated vacuum instantly replaces it, continually and forever.

Now we are free to build a device which (1) establishes the excited vacuum/spacetime/potential in the first place, and (2) then taps off the virtual photon energy of the excited vacuum potential itself, without allowing depletion of the sustaining charged particles that are fixed in position and creating/pumping the virtual photon flux that creates the potential. We can tap the continual power of the Whittaker EM biwaves flowing through the excited vacuum potential forever, without exhausting it. It is simply comparable to putting a paddlewheel in a river, where in this case the Whittaker bidirectional EM wave structure is the river, and a special tapping device or process is the "paddlewheel." We can extract all the energy we wish, forever, from the stream, and the vacuum itself will continually and forever replenish the stream as fast as we extract the power.

So we can build an over-unity machine, IF WE TAP THE LOCALLY ALTERED VACUUM POTENTIAL'S HIDDEN WHITTAKER RIVER, rather than releasing the sustaining electrical charges/VPF spray pumps we accumulated to create that altered potential.

If you release the charges (the electrons, e.g.) as normal electrical engineers are trained to do, the charges translate and mechanically bang and clang their way through resistances, etc. on the way to electrical ground, depleting the potential in the process. This banging and clanging produces scattering of the order/energy in the potential and hence does work. But that way you only get one shot of it. It's a one-time thing, and then you've got to pay to move in some more charges, build another potential, and release the potential and the charges so the charges will go banging and clanging through the circuit again, scattering energy (order) and producing one-time work again.

That's a very poor way to do business. It's rather like having some free, self-powered pumps, building a dam to hold some water pressure, moving in some of the pumps and pumping up water behind the dam to provide the pressure, then knocking down the dam and releasing the pumps and the water simultaneously, so that the water will rush out and push the pumps along to bump into things along the flow channel and do "banging and clanging" work. Yes, you can get some work done by the pumps one time that way. But it's a "hell of a way to run a railroad!" Yet all our present electrical engineers and electrical scientists are trained to plan, develop, build, and utilize just such crude EM systems!

Nature's Engines: Charged Particles Are Pumps

Charged particles, in quantum mechanics, are engaged in a violent virtual particle flux exchange with the vacuum. The violent virtual photon exchange between vacuum and mass particle is what creates and constitutes the electrical charge on that particle of mass. In other words, the electrically charged particle is nature's little "spray engine" or "spray pump," with respect to virtual photon flux or spray.

The magnitude of the electrostatic scalar potential created by the accumulated charges (spray pumps) represents the local magnitude (flux/spray density) of that virtual photon "spray." It has nothing to do with the mass of the charges, except that nature has built those particular masses to be "little self-powered spray pumps."

When we "charge up" an accumulator, such as a steel sphere or a capacitor, we push in the electrons so that they pack closer together, and we thus increase the virtual photon spray density because we've accumulated more sprayers in a confined volumetric region. The volumetric spray density represents the magnitude of the electrostatic scalar potential (ESP), in this analogy.

Contrary to conventional wisdom, Whittaker proved that this scalar potential - this "spray density" --- is internally organized into hidden, flowing, bidirectional EM waves.[14] EM forcefield wave Energy is flowing in both directions. In the electrostatic scalar potential, the net

Poynting vector resultant is zero, but it is a "sum-zero system" composed of an infinite set of opposite but equal finite Poynting vectors. That zero vector resultant is a scalar EM potential. It's got lots and lots of EM energy flowing both in and out simultaneously, but these flows are normally balanced and in equilibrium.

The Overunity Electrical Machine's Secret

However, if we could tap the EM energy in those hidden EM waves flowing oppositively inside the ESP, we could extract EM energy from the vacuum. We could "gate" some of the spray energy, that comes in from the vacuum to the charged particle, into the external circuit instead of back out to the vacuum. If so, we can use that "extracted and externally gated EM energy" to power a load. The "nucleus as a Whittaker-pumped phase conjugate mirror" mechanism I found in 1986, furnished to Floyd Sweet in early 1987, an released in 1991 allows precisely that tapping and gating capability.

Here's the magic secret of all electrical over-unity machines:

1) TAP THE VIRTUAL PHOTON SPRAY.

2) TAP THE ENERGY IN THE MASSLESS VACUUM POTENTIAL.

3) DO NOT RELEASE THE SPRAY PUMPS.

4) DO NOT ALLOW CURRENT FLOW IN THAT PART OF THE CIRCUIT WHERE THE CHARGE PUMPS ARE COLLECTED TO CREATE THE POTENTIAL.

5) OR AT LEAST ALLOW ONLY THE ABSOLUTE MINIMUM OF FLOW/BLEED-OFF THERE, OF THE PUMPS.

6) ORGANIZE, GATE, AND APPLY THE POTENTIAL SPRAY TO THE EXTERNAL CIRCUIT, WHERE IT WILL ATTACH TO AVAILABLE ELECTRONS, FORMING FORCE FIELDS, VOLTAGE, AND CURRENTS TO PUMP ELECTRONS AROUND THE CIRCUIT.

7) USE THOSE EXTERNALLY POWERED FIELDS AND CURRENTS TO POWER THE LOAD.

You can freely tap the potential's VPF "spray" forever, once one is created in the vacuum. As fast as you scavenge out the power in the spray, it is just renewed by the continued pumping of the charged particle "spray pumps." Nature and nature's excited vacuum potential "flux-spray" provide and replenish that pumping and that power, for free, forever.

So the altered vacuum (potential) is a universal "virtual-photon- flux fuel" if you construct your power units correctly. But you must engineer things one step deeper than the present seriously flawed electromagnetics prescribes.

Similar constructions give the secret of gravity and antigravity, and how to engineer them as well. However, that is beyond the scope of this paper.

All Systems Are Open To Vacuum Flux Exchange

As we stated, our attention is no longer directed to scalar EM weapons, but to the Phase II operation. That is progressing; there are at present several legitimate devices or processes that produce overunity. We reiterate that this is nothing mystical; none of these systems or processes is a closed system, so closed-system energy conservation need not apply locally.

Indeed, there is really no such thing in the universe as a truly closed system, anywhere. Every system is open to the vacuum's virtual particle flux, and is in fact already in a fantastic virtual particle exchange with the vacuum. Normally, however, the influx and the outflux are equal in absolute magnitude; hence the system is in internal equilibrium vis-a-vis the vacuum.

However, if one breaks the equilibrium in this internal flux exchange, and organizes and gates a portion of that influx on out of the atom and into the external circuits, one can power an external electromagnetic load directly from the extracted vacuum energy. It is no more mysterious than placing a paddlewheel in a flowing stream, to extract some useful energy as shaft horsepower. We just have a more esoteric stream and a more esoteric paddlewheel.

In Conclusion

We also point out that there are no irrevocable "laws" of nature. Every so-called "law of physics" is just a great and useful generalization, based on certain fixed assumptions, that holds in a broad area. If the assumptions are violated, however, the law need no longer hold, and it can be violated.

Scientific proof is proof by the experimental method, not by the authoritarian pronouncements of orthodox scientists. Unfortunately, orthodoxy as yet knows nothing of the process we are advancing, or of scalar electromagnetics. In the unorthodox experimental arena, however, scalar EM is still a newborn infant in the womb, but it is thriving and advancing. It is up to us to serve as midwives and get the infant born.

NOTES AND REFERENCES ---

1. T.E. Bearden and Walter Rosenthal, "On a testable unification of electromagnetics, general relativity, and quantum mechanics," *Proceedings of the 26th Intersociety Energy Conversion Engineering Conference*, August 4-9, 1991, Boston, Massachusetts.

2. Floyd Sweet and T.E. Bearden, "Utilizing scalar electromagnetics to tap vacuum energy," *Proceedings of the 26th Intersociety Energy Conversion Engineering Conference* (IECEC '91), August 4- 9, 1991, Boston, Massachusetts.

3. E.T. Whittaker, "On the partial differential equations of mathematical physics," *Mathematische Annalen*, Vol. 57, 1903, p. 333-355. See also V.K. Ignatovich, "The remarkable

capabilities of recursive relations," *American Journal of Physics*, 57(10), Oct. 1989, p. 873-878. See also Richard W. Ziolkowski, "Localized transmission of wave energy," *Proc. SPIE* Vol. 1061, Microwave and Particle Beam sources and Directed Energy Concepts, Jan. 1989, p. 396-397.

4. This self-oscillation in barium compounds is well-known in nonlinear optics, although it is usually experimentally accomplished in the optical frequency regime. Sweet brilliantly discovered how to initiate this self-oscillation or self-pumping at ELF frequencies, such as 60 Hz.

5. For a statement of the distortion correction theorem, see Amnon Yariv, *Optical Electronics*, Third Edition, Holt, Rinehart and Winston, New York, 1985, p. 500-501. See also David M. Pepper, "Nonlinear optical phase conjugation," *Optical Engineering*, 21(2), March/April 1982, p. 156-183 for a good overview of optical phase conjugation.

6. Shortly below, energy will be defined as a certain kind of order. So the present "definition" of energy actually is stating that "order is the disordering of order." In that form, the logical contradiction in the "definition" is immediately apparent.

7. E.T. Whittaker, 1903, ibid.

8. This is true because the wave and antiwave are interferring. Such interference produces galloping waves, whose instantaneous velocity varies from the speed of light.

The galloping wave slows to, say, 0.01 c, then rushes forward again at 100 c, then slows, then speeds up, and so on. Its average velocity is c. But its instantaneous velocity is usually anything but c. See William G. Harter, John Evans, Roberto Vega, and Sanford Wilson. "Galloping waves and their relativistic properties." *American Journal of Physics*, 53(7), July 1985, p. 671-679.

9. Occasionally yet another physicist discovers that photon interaction is actually binary, and that we ignore or discard half of almost all of our measurements. For example, see Richard Kidd et al, "Evolution of the Modern Photon," *American Journal of Physics*, 57(1), Jan. 1989, p. 27-35. See also R. Chen, "Cancellation of Internal Forces," *American Journal of Physics*, 49(4), Apr. 1981, p. 372.

10. Essentially this has been experimentally proven. E.g., when one has a phase conjugate material, it may emit either photons (a normal wave) or antiphotons (a time-reversed or phase-conjugate wave).

Now, if I am right as to the genesis of Newtonian 3rd law reaction force, then when the material emits a time-reversed wave, or an antiphoton, the material should not recoil. Such experiments have in fact been done in nonlinear optics experiments, and "inexplicably" a phase conjugate mirror material does not recoil when it emits an antiphoton or a phase conjugate wave, seemingly violating Newton's third law! So it seems I am correct after all.

11. In the modern GR view, all trapped energy is gravitational. It is the trapped EM energy in mass, e.g., that is gravitational. Mass is in fact a highly intense mass potential.

Since any scalar potential is also a form of trapped EM energy, that energy --- and hence the potential also --- is gravitational in nature.

12. E.T. Whittaker, "On an expression of the electromagnetic field due to electrons by means of two scalar potential functions," Proceedings of the London Mathematical Society, Series 2, Vol. 1, 1904, p. 367-372. Here Whittaker demonstrates that the present forcefield electromagnetics can be replaced by scalar potential interferometry. And I'm called a lunatic for speaking of scalar interferometry!

Rigorously the scalar potential is composed of a dynamic, opposing vector forcefield wave internal structure. Internally it's vectorial; externally it's scalar. Whittaker 1903 tells how to make standing scalar potentials; these can be made as beams.

And one can then interfere the two scalar EM beams to produce EM force fields directly in distant charged particle systems, by Whittaker 1904.

13. E.T. Whittaker, 1904, ibid.

14. Mathematically these hidden waves may be modeled as hyperspatial waves.

Tom Bearden/Sweet VTA Development

From PESWiki

by Leslie R. Pastor

This page was created to enable Tom Bearden an opportunity to refute incorrect information and to explain his relationship with Floyd Sweet and John Bedini. I believe that future history will fully vindicate 'negative energy' and resolve our serious energy problem.

Responding to . . .

In an answer to the following post from the Sweet VTA Group....Tom Bearden provides a significant CORRECTION regarding: "'Bedini Patent' is referred to and in
other posts John Bedini acknowledges that he worked for Sweet and obtained the magnets from a surplus shop. There was no actual test made of the magnet composition so
it's unconfirmed what the magnet composition was."

John Bedini posted comments and pictures of the VTA on the Keelynet website and can be looked up there.

"Bearden posts much of his information from HEARSAY as he did not observe the tests visually but obtained the info via telephone conversations with Sweet". This is a patently FALSE STATEMENT -- as Tom Bearden explains below:

Bearden Replies

Hi Les,

Typical [mis]information. He charges "hearsay" and speaks entirely from hearsay himself.

I did lots of experiments with Sweet, in Sweet's lab, on personal visits to California to work with him awhile (ask John Bedini, he was there). And John did not "work for" Sweet; to the contrary, he personally assisted Sweet to help him get going, for free. Without John's assistance, Sweet would have been a very much longer time in getting successful activation of persistent self-oscillation in his barium ferrite magnets.

http://www.cheniere.org/misc/sweet.htm

At the time I met him, Sweet knew nothing of phase conjugate optics (when he got his Master's degree from MIT in the 1940s, the subject was not even being taught in the U.S., or even known here -- check it out). Information on phase conjugate optics was given to the U.S. by the Russians much later in a briefing by the Russians at a U.S. university, and even then it took quite a while for the U.S. to get going in phase conjugation. Again, check it out.

I personally extracted the main phase conjugate equations from one of the first books on the subject, and furnished them to Sweet since he was entangled with -- among other things -- phase conjugate signals. At the time, his unit put out only 6 watts. That's S-I-X watts, not 500.

Incorporating the results of phase conjugation for more proper handling, Sweet's next VTA put out 500 watts of power and had an amplification (COP)due to his new phase conjugate pumping of 1,500,000. Then since his unit also put out negative EM energy, and with high gain that makes antigravity possible, I designed the antigravity experiment for him, and gave it to him. At the time, I was very busy with my aerospace job at Computer Sciences Corporation, and could not travel again to California for some weeks. Hence Sweet built the necessary output unit and set up and performed the experiment there in California with me on the phone with him, here from Alabama. He read off the measurements there on the bench, and I wrote them down here in Huntsville.

I later included these results in a joint paper, putting Sweet's name first which was proper, since he was the inventor, not me. The paper is Floyd Sweet and T. E. Bearden, "Utilizing Scalar Electromagnetics to Tap Vacuum Energy," Proc. 26th Intersociety Energy Conversion Engineering Conference (IECEC '91), Boston, Massachusetts, 1991, p. 370-375

Contrary to your disinformation, the magnets were indeed barium ferrite magnets -- the old audio kind which were quite common in surplus shops at the time. Again, ask John Bedini.

And for your information, I personally took a Sweet-activated barium ferrite magnet, placed a shim stock on it, and watched the shim stock oscillate continuously to and fro for an hour, fanning air and doing free work all the time. I then locked the self-oscillating magnet and its waving shim stock fan load) in a safe, and took the key with me. 24 hours later, when I reopened the safe, there sat the magnet with its shim stock still waving and fanning air and doing free work.

Sweet himself had great difficulty in activating the magnets; only about one in 30 had a sufficiently "accurate" and even overall field to take and hold activation. He only got to that level of success when Walter Rosenthal built for him a device to allow much more precision in the activation process, and when he initiated a line-scanning process for checking the smoothness of the magnet's magnetic field. Too may ripples, the material construction was too variable and it would not hold activation. Thereafter, he could successfully activate one selected from about 30 "scanned" magnets, and that one would "hold" the activation for a long time (in some cases, a year or two at the least). Most unscanned and non-culled magnets would hold it only for a few seconds to a few hours as they lost their self-oscillation activation.

You speak lightly of hearsay -- did you ever even meet Sweet, or Bedini? Or me either, for that matter? Did you meet Walter Rosenthal, who built Sweet's activation circuit and system for him, and who measured and examined several Sweet VTA systems, including the last one that was self-powering (closed clamped positive feedback loop system)? I never saw the closed-loop self-powering Sweet system.

To my knowledge, the answer is no, you were not there, know nothing about what happened or what was done, and are just "spouting off". So everything you have uttered is the rankest hearsay, and in fact much of it is a flat lie.

Since you seem to want to pose as a fount of all knowledge, then please explain precisely how Sweet was able to trick the negative binding energy of the barium nucleus in his barium ferrite magnets into long-lasting self-oscillation. The powerful negative energy binding forces in the nucleus are one of the few places one can get gains (COPs) on the order of 1,500,000. Once you have the original gain stably, however, it is fairly straightforward to increase it further if you are dealing with negative energy. I personally activated several sets of magnets in Sweet's lab when working with Sweet, but I also never knew the FULL activation secret which he kept very, very secret.

One can produce negative energy in several ways; self-oscillation of the barium nucleus' negative binding energy is one. Sharp gradients (as used for nearly 20 years by Bedini in his battery chargers and other circuits) are another; the sharp gradient suddenly lifts normal electrons from the Dirac Sea, resulting in a sudden spurt of normal electron current (usually called the Lenz law effect). But accompanying it is the sudden spurt of currents of"Dirac Sea holes" in the opposite direction. And while they exist, those holes are pouring out negative EM energy. The longer they exist before swallowing up an electron, the more negative EM energy they freely emit.

And a Dirac Sea hole is not a positron (that was a trick by the conventional physics community to get rid of negative energy arbitrarily). The Dirac Sea hole is actually a negative mass-energy electron. And as a source charge, it produces negative energy EM fields -- i.e., fields whose photons are of negative angular momentum, that is, they have (-delta E)x(t), rather than (+delta E)x(t).

Please go and read some of Dr. Dan Solomon's papers, since his group has now strongly pointed out that it was an error and a mistake to arbitrarily eliminate negative energy from the Dirac Sea theory. Particularly see Dan Solomon, "Some new results concerning the vacuum in Dirac's hole theory," Physica Scripta, Vol. 74, 2006, p. 117-122. He has several other key papers on the subject also.

Here's a quote from Dotson, dealing with the issue of the arbitrary exclusion of negative energy. Quoting:

"I think if one had to point to a single place where science went profoundly and permanently off the track, it would be 1934 and the emasculation of Dirac's equation." .
"Dirac's wave equation is a relativistic generalization of the Schrodinger wave equation. In 934 this brilliantly successful equation was shorn of half of its solutions by a questionable bit of mathematical slight-of-hand. Because it was 'politically correct,' this bit of juggling became the accepted interpretation. However, recent developments have shown the very basis of this mathematical trick to be invalid." "Dirac's complete equation, however, describes a quantum spinor field, which has as solutions four different kinds of electrons: electrons and positrons of positive energy, and electrons and positrons of negative energy." [D. L. Hotson, "Dirac's Equation and the Sea of Negative Energy, Part I, New Energy, Issue 43, 2002, pp. 1-20.]

Indeed, Dirac got his positron with a sleight of hand bit of trickery. The "hole" itself has negative mass energy. If the hole (altered vacuum) movesaway and is replaced by a filled hole (normal vacuum), the CHANGE that will be observed is positive -- in short, a positron change. That is not the hole at all, but is the change resulting from the replacement of the empty hole by a filled hole. The (-1) negative energy of the hole increased by (+1) to get back to (0) (a filled hole). Identifying the (-1) hole as a (+1)replacement by a filled hole falsely assumes that 0 - 1 = +1, a violation of simple arithmetic.

Quoting Dirac (who hated negative energy) himself, where E = energy:

"One gets over the difficulty on the classical theory by arbitrarily excluding those solutions that have a negative E. One cannot do this in the quantum theory, since in general a perturbation will cause transitions from states with E positive to states with E negative." [Dirac, Proceedings of the Royal Society A, Vol. 117, p. 610.]

Not only Dirac, but most other scientists also hated negative energy, and so they were determined to get rid of it at whatever costs.

Quoting Farmelo:

"Dirac. proposed that, if a negative-energy electron were for some reason 'displaced', experimenters should be able to observe it as a positive-energy particle with a positive charge. (The empty space will have become less negative, and therefore more positive.) At first, he identified these holes as protons, but by 1931 he had changed his mind and come to a much more radical conclusion: 'A hole, if there was one, would be a new kind of elementary particle, unknown to experimental physics, having the same mass and opposite charge to the electron.' ". [Graham Farmelo, "Pipped to the positron," New Scientist, 10 Aug. 2002, p. 48-49. Quote is from p. 48.]

In other words, if you FILL the hole, the filling process will appear to be a positron appearance. But a FILLED hole and an empty hole are not at all the same thing, and assuming they are is a false assumption.

I will tell you that most of this stuff with negative energy (and also antigravity) is also "old hat" for several decades now to several nations who have developed and deployed (in great secrecy) negative energy EMP weapons among other things. The Russian scientists have known all about negative energy since shortly after WW II, and they are probably the most knowledgeable in it today as well.

Several persons have been able to activate barium ferrite magnets where the activation lasted for several hours or in a few cases even six weeks. While activated, they had the successful mechanism of a Sweet VTA operating. But so far as I'm aware, no one else (at least in the open community) except Sweet has been able to get extremely long and enduring activation (self-oscillation of the negative binding energy of the barium nucleus).

Yours truly,

Tom Bearden

In a follow-up email.........Tom Bearden clarifies further:

From: "Tom Bearden" <soliton@bellsouth.net>
To: "'Leslie R. Pastor'" <lrpastor@optonline.net>
Sent: Tuesday, October 02, 2007 11:15 AM
Subject: RE: [Sweet-VTA] Re: VTA Development

No Problem!

John is telling it like it happened. He actually got Sparky started, and helped him immensely -- with work, parts, and even protection. All completely true. And John did save Sparky's life, just as he stated. And John is indeed the one who introduced me to Sparky, and arranged for me to meet him and work with him as I could.

In my opinion, John Bedini is the only man living who really knows exactly how Sparky activated his magnets. And who can probably do it. And the "backers" and other folks who cluttered around Sparky were responsible for excluding Bedini, because in their view John knew exactly how the beast worked and how to make it.

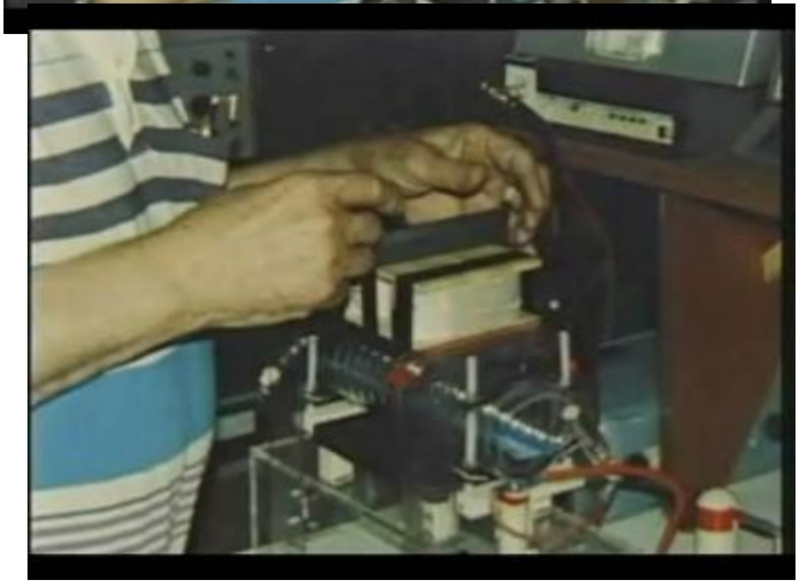
John Bedini has forgotten more crucial knowledge of strange circuits and overunity power systems than most people will know in ten lifetimes. And he's simply the best there is out there, to my knowledge and in my opinion. I do expect to see working Bedini units on the market soon, and am looking forward to it with great hopes. John just may be the man who saves the U.S. from a catastrophic economic collapse over the escalating oil crisis and energy problem.

Best wishes,

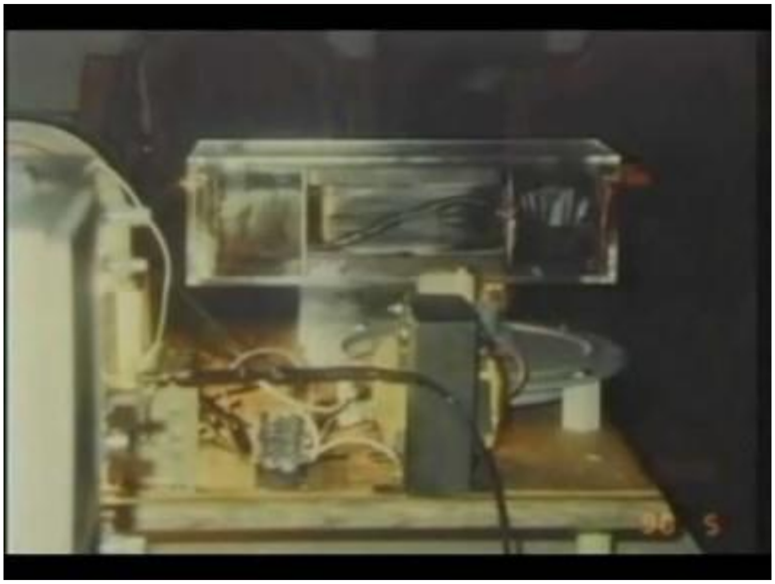
Tom

http://physics.nad.ru/engboard/messages/1657.html
http://www.ssrsi.org/sr2/Heat/fed.htm
http://www.gopetition.com/petitions/time-for-an-energy-renaissance.html
http://merlib.org/node/5282

A Practical Guide To Free Energy Devices
http://www.panaceauniversity.org/D5.pdf
"http://peswiki.com/index.php/Site:LRP:Tom_Bearden/Sweet_VTA_Development"

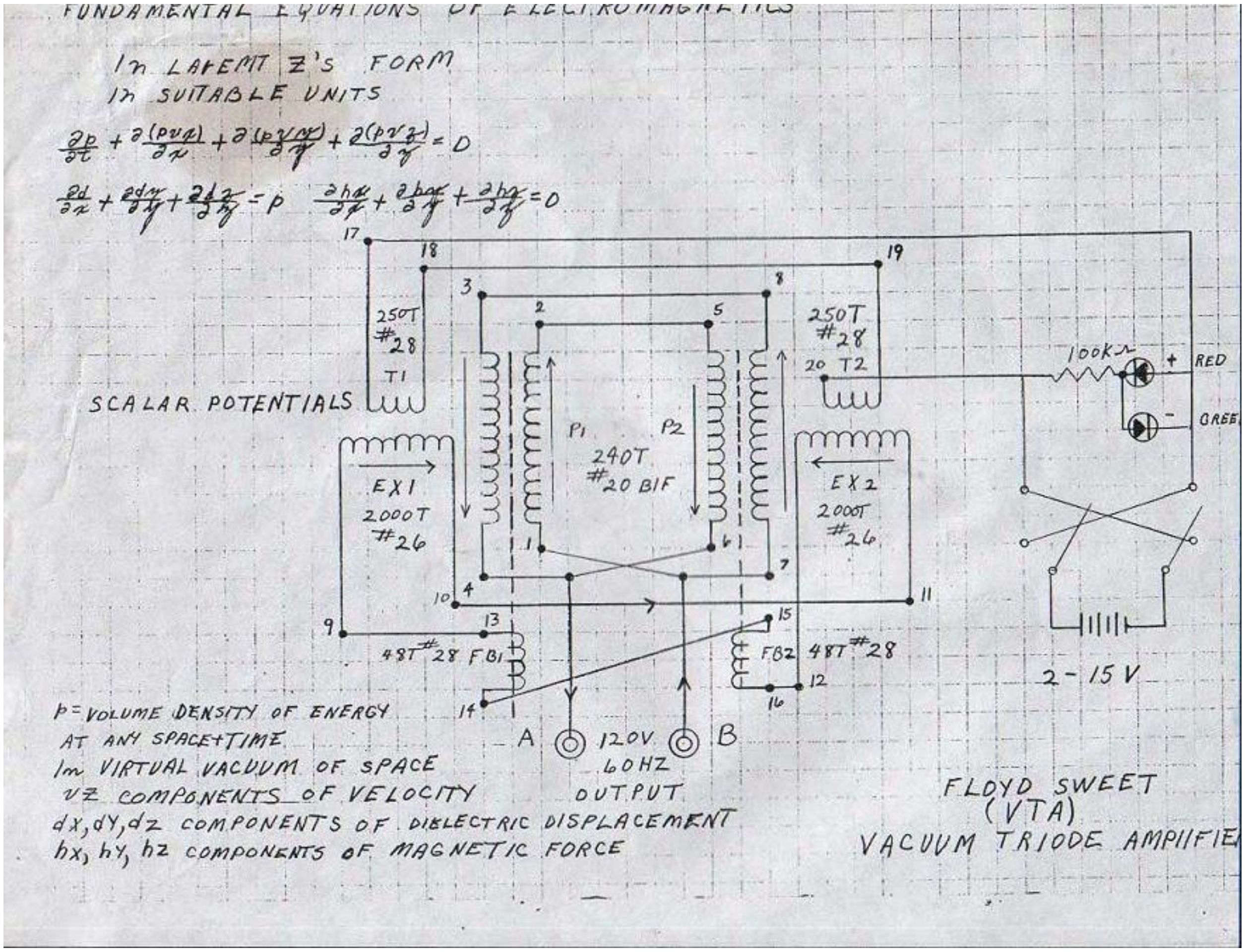


…



90 5

...


FUNDAMENTAL EQUATIONS OF ELECTROMAGNETICS
In LAFEMT Z'S FORM
In SUITABLE UNITS
$\frac{\partial p}{\partial t} + \frac{\partial (pvx)}{\partial x} + \frac{\partial (pvy)}{\partial y} + \frac{\partial (pvz)}{\partial z} = 0$
$\frac{\partial d}{\partial x} + \frac{\partial dy}{\partial y} + \frac{\partial dz}{\partial z} = p$
$\frac{\partial hx}{\partial x} + \frac{\partial hy}{\partial y} + \frac{\partial hz}{\partial z} = 0$
17
18
19
3
8
2
5
250T
#28
T1
250T
#28
20 T2
SCALAR POTENTIALS
100kΩ
+
RED
-
GREE
P1
P2
240T
#20 BIF
EX1
2000T
#26
EX2
2000T
#26
1
6
4
7
10
11
9
13
15
48T #28 FB1
FB2 48T #28
12
16
14
2 - 15 V
p = VOLUME DENSITY OF ENERGY
AT ANY SPACE+TIME
In VIRTUAL VACUUM OF SPACE
VZ COMPONENTS OF VELOCITY
dx, dY, dz COMPONENTS OF DIELECTRIC DISPLACEMENT
hx, hY, hz COMPONENTS OF MAGNETIC FORCE
A
120V
60HZ
OUTPUT
B
FLOYD SWEET
(VTA)
VACUUM TRIODE AMPLIFIE

Floyd SWEET

Space Quanta Magnifier (SQM) / Vacuum Triode Amplifier (VTA)

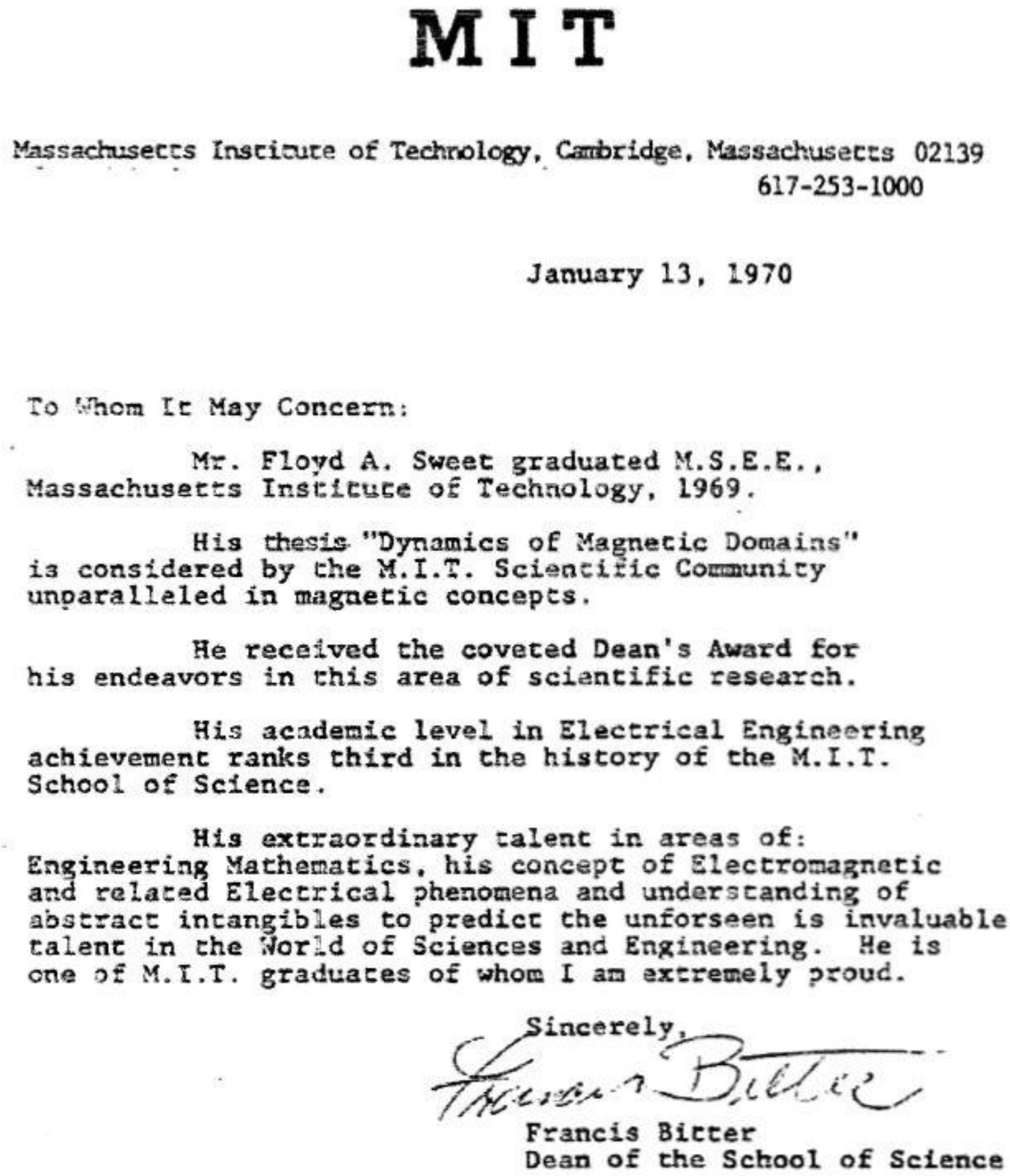
---

(1) Letter : F. Sweet to "Maurice" (26 April 1987) (PDF, 216 kb)

(2) Narrative Report by "Maurice" (Undated, post-1988) (PDF, 197 kb)

(3) Floyd Sweet : "Nothing is Something..." (Original typewritten ms., 24 June 1988) (PDF, 250 kb)

Floyd A. Sweet Credentials -- M.I.T.



MIT

Massachusetts Institute of Technology, Cambridge, Massachusetts 02139
617-253-1000

January 13, 1970

To Whom It May Concern:

Mr. Floyd A. Sweet graduated M.S.E.E., Massachusetts Institute of Technology, 1969.

His thesis "Dynamics of Magnetic Domains" is considered by the M.I.T. Scientific Community unparalleled in magnetic concepts.

He received the coveted Dean's Award for his endeavors in this area of scientific research.

His academic level in Electrical Engineering achievement ranks third in the history of the M.I.T. School of Science.

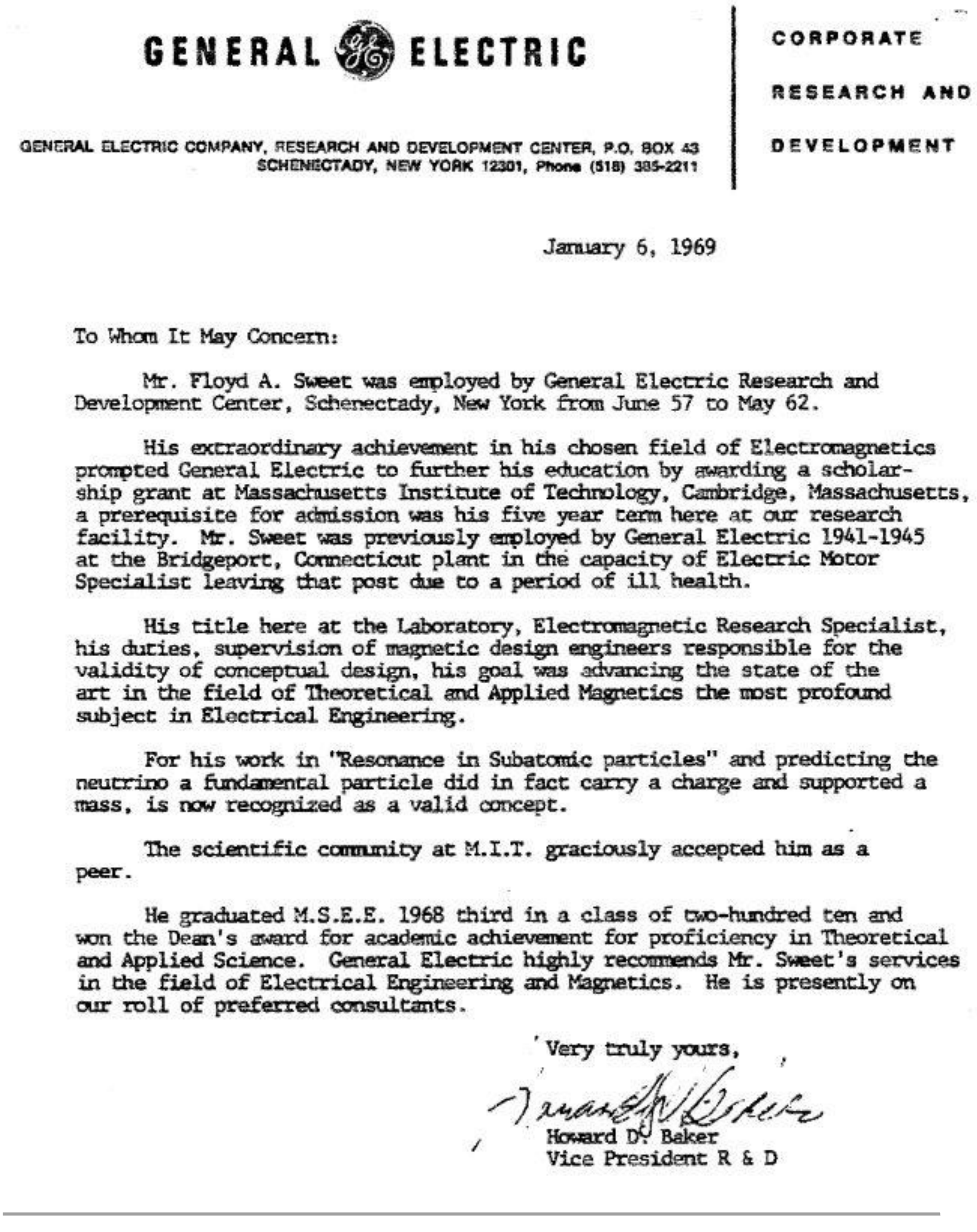
His extraordinary talent in areas of: Engineering Mathematics, his concept of Electromagnetic and related Electrical phenomena and understanding of abstract intangibles to predict the unforseen is invaluable talent in the World of Sciences and Engineering. He is one of M.I.T. graduates of whom I am extremely proud.

Sincerely,

Francis Bitter

Francis Bitter
Dean of the School of Science

Floyd A. Sweet Credentials -- General Electric



GENERAL ELECTRIC

CORPORATE
RESEARCH AND
DEVELOPMENT

GENERAL ELECTRIC COMPANY, RESEARCH AND DEVELOPMENT CENTER, P.O. BOX 43
SCHENECTADY, NEW YORK 12301, Phone (518) 385-2211

January 6, 1969

To Whom It May Concern:

Mr. Floyd A. Sweet was employed by General Electric Research and Development Center, Schenectady, New York from June 57 to May 62.

His extraordinary achievement in his chosen field of Electromagnetics prompted General Electric to further his education by awarding a scholarship grant at Massachusetts Institute of Technology, Cambridge, Massachusetts, a prerequisite for admission was his five year term here at our research facility. Mr. Sweet was previously employed by General Electric 1941-1945 at the Bridgeport, Connecticut plant in the capacity of Electric Motor Specialist leaving that post due to a period of ill health.

His title here at the Laboratory, Electromagnetic Research Specialist, his duties, supervision of magnetic design engineers responsible for the validity of conceptual design, his goal was advancing the state of the art in the field of Theoretical and Applied Magnetics the most profound subject in Electrical Engineering.

For his work in "Resonance in Subatomic particles" and predicting the neutrino a fundamental particle did in fact carry a charge and supported a mass, is now recognized as a valid concept.

The scientific community at M.I.T. graciously accepted him as a peer.

He graduated M.S.E.E. 1968 third in a class of two-hundred ten and won the Dean's award for academic achievement for proficiency in Theoretical and Applied Science. General Electric highly recommends Mr. Sweet's services in the field of Electrical Engineering and Magnetics. He is presently on our roll of preferred consultants.

Very truly yours,

Howard D. Baker
Vice President R & D

Floyd "Sparky" SWEET

Collected Writings

Magnetic Resonance [PDF]

The Space-Flux Coupled Alternator [PDF]

Validating Quantum Mechanics [JPG]
[Page 1] [Page 2] [Page 3]

The Energy-Matter Involute [JPG]
[Page 1] [Page 2]

Space-Quanta Modulator -- Clean propulsion Power Now ! [PDF]

A Dimensionless Viewpoint of a Four-Dimensional Cosmos
[Page 1] [Page 2]

Flaws in the Ecklin Theory

Cosmic Rays, Natural Magnetic Fields, Coherent Quanta Energy and Aurora Borealis [PDF]

Intergalactic Space Travel

Letter to Mark from Sparky

Leslie I. SZABO

"Energy by Motion" (EBM) Generator

[Click Photo to Enlarge --- 345 KB]

GAMMA Manager website: www.gammamanager.com

Contact: mailto:info@gammamanager.com

GAMMA Manager
Kft 2040 Budaors
PO Box 90
Budapest
Hungary

Unconfirmed claims...

http://www.steorn.net/forum/comments.php?DiscussionID=19331&page=1#Item_0 ---

"We are routinely producing with our EBM Power Plants several kilowatts well over unity without any pollution and emissions whatsoever!"

"One of these 10-megawatt units will heat 280 houses and air-condition them, plus you have cheap power, guaranteed at six cents."

"All that EBM needs to start it is a small motor or engine that produces torque (2.5% - 5% of rated output, depending on how quickly you want to start it up). If you're out where there's no power at all, you go to a local farmer and get a John Deere, hook on to it and start it up. Initially, it rotates the EBM drive unit, and it achieves operating speed. Its unique geometry allows extra shaft power to be produced as the rotor is rotated through the magnetic field. The shaft power is converted to electricity via a synchronous generator attached to the shaft of the EBM unit. A small quantity of the electricity is then fed back

into the EBM unit to continue the rotation. The excess power produced can then be used or sold for profit. In other words, when we sell a 10-megawatt unit, it is actually producing 15-megawatts --- it will be the 15-megawatt generator. It will take between one and ten percent of the rated capacity (depending on size) back to drive the EBM motor, giving you 10 megawatts to feed into the grid 24 hours a day, seven days a week. The idea is to keep the flux alive."

http://www.gammamanager.com/index2.html ---

"The power plant can be commissioned within a very short time after the order is placed. With the inexpensive and clean EBM electric power, and heat energy, the production of hydrogen for fuel cells is highly competitive or the production of nitrogen for fertilizer, or desalination of sea water can be economically implemented. With the torque produced by EBM Units, large ships or locomotives can be directly driven!

The self-reliant EBM plant uses its own self-generated electromagnetic fuel. The research and development work of this hi-tech technology began in 1980 in four laboratories in Toronto, Houston, London and in Budapest, managed for ELECTRO ERG LIMITED (EEL) by the GAMMA Group, under Professor L. I. Szabó's leadership.

This technology is non-nuclear, 100 % environment friendly with zero emissions.

Being environment-friendly, this technology has several other very important additional features as follows:

The average 1 kilowatt-hour electric power costs 75 % to 80 % of most local tariff rates at 65 % load factor (appx. 5,700 hours use per annum); The pay-back period of invested capital is less than 4 years!

The power plant can be commissioned within a very short time after the order is placed.

The average turn-key-cost of the EBM Power Plants is less than 2,000 USD/kW depending upon the MW size of the plant; This includes fuel for 40 years!

With the inexpensive and clean EBM electric power, and heat energy, the production of hydrogen for fuel cells is highly competitive or the production of nitrogen for fertilizer, or desalination of sea water can be economically implemented. With the torque produced by EBM Units, large ships or locomotives can be directly driven!

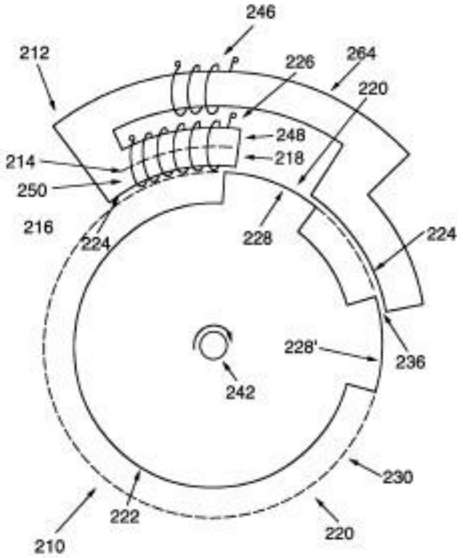
Certification by N. American & European Experts: www.gammamanager.com/index3.html

---

CA2131961

ASYMMETRICAL ELECTRO-MECHANICAL DEVICE

SZABO, Leslie I.
Applicant: ELECTRO ERG LTD (HU)
EC: IPC: H02K1/12; H02K1/12; (IPC1-7): H02K1/12
3-14-1996
Also issued as: NO943284 // AU3743193

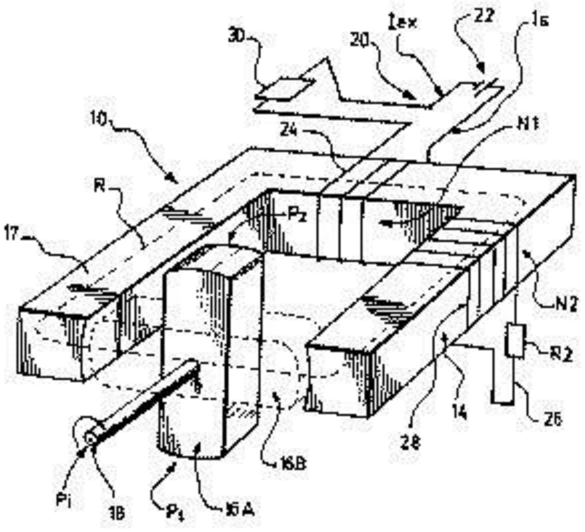


Abstract --- This invention relates to an asymmetrical, electro-mechanical device comprising a geometricallymagnetically-asymmetrical stator and a rotor which move with respect to each other. There is a stator air gap which makes the stator asymmetrical. The continuous magnetic flux path is still substantially planar. The magnetic flux passing from the rotor to the stator is interrupted when the rotor passes by the stator air gap. The stator has two faces with armature conductors on both faces and the rotor has two faces which successively interact with the two stator faces. In a further embodiment, the electromechanical device comprises a plurality of stators and rotor faces, each being substantially interchangeable. The invention is able to achieve improvements over the prior art electro-mechanical devices, particularly in respect of efficiency.

WO9213383

METHOD OF INCREASING THE EFFICIENCY OF AN ELECTRICAL GENERATOR

SZABO, Leslie I.
EC: H02K19/20; H02K19/24; (+1) IPC: H02K19/20; H02K19/24; H02K35/06 (+6)
8-06-1992

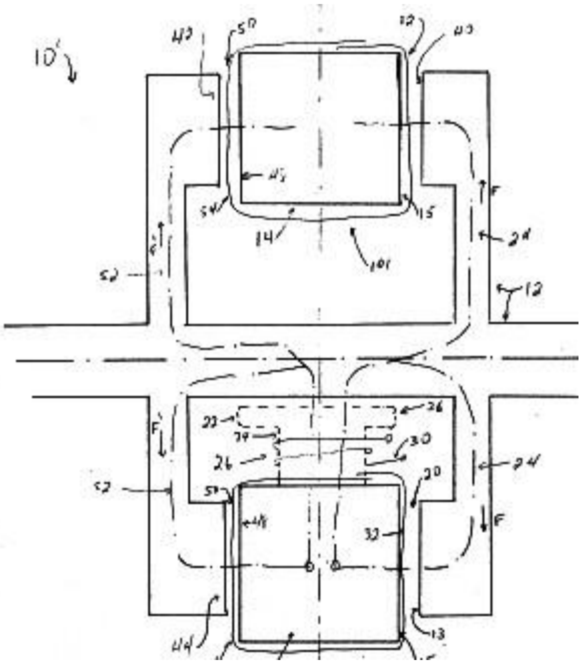


Abstract --- This is a method of increasing the efficiency of an electrical generator (10) of the type that generates real output power by a change of the reluctance of the magnetic flux path. The efficiency is improved by providing specific components, features and characteristics of the generator (10) in combination in accordance with a specific relationship so as to reduce the relative effect of the load. Also, the efficiency is improved by recognizing and reducing the effect of an alternating current superimposed on the excitation current.

CA2048719 (Drawings)

COMMUTATORLESS DIRECT CURRENT MACHINE (CDC)

SZABO, Leslie I.
EC: IPC: H02K29/00; H02K29/00; (IPC1-7): H02K29/00
2-09-1993

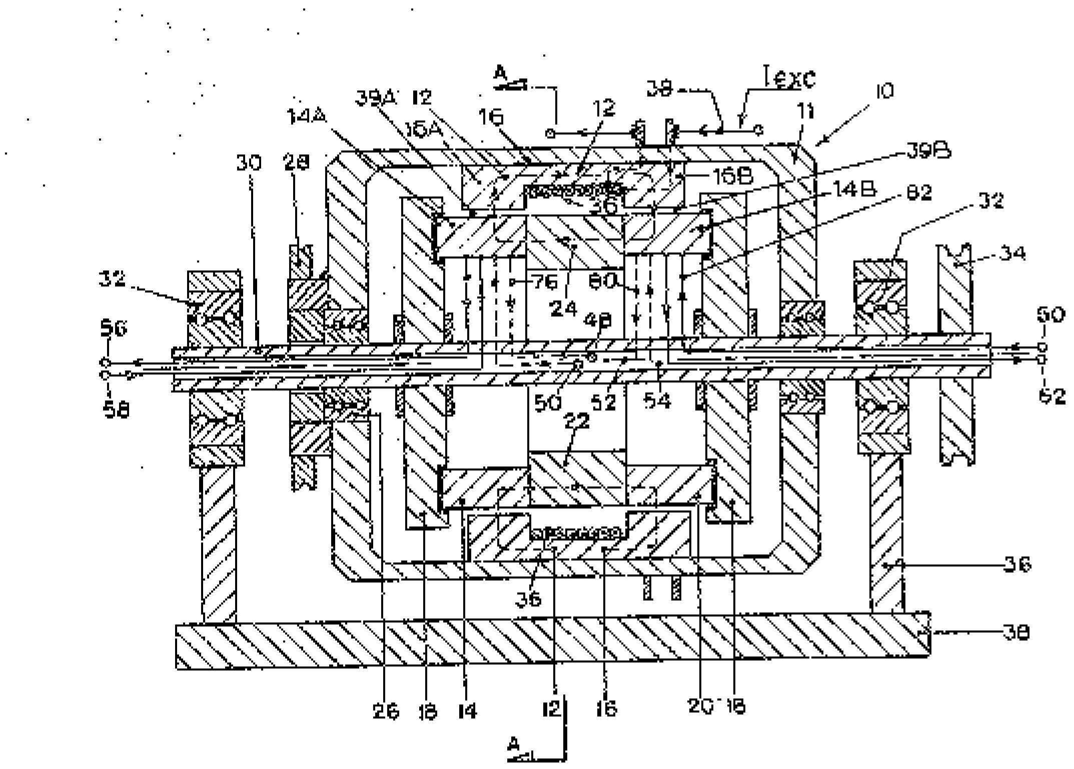


Abstract --- The present invention relates to an electro-magnetic machine comprising a rotor and a stator moving relative to each other, a gap between the rotor and stator and an armature conductor positioned in the gap and associated with either the rotor or the stator. A magnetic flux generated by a magnetic flux generating means passes uni-directionally through the gap either into or out of the stator at a pole, through the stator, through a member magnetically connecting the stator and the rotor, into and through the rotor and out of or into the rotor at a pole and back to the gap. In this way, when the rotor moves relative to the stator, an electrical current or potential will be developed in the conductor and the machine will act as a generator. Alternatively, if current is made to flow in the armature conductor, the rotor will move relative to the stator and the machine will operate as a motor.

CA2036195 (Drawings)

ROTOR/STATOR COMBINATION

SZABO, Leslie I.
EC: IPC: H01R39/64; H02K16/00; H02K23/02 (+6)
8-13-1992

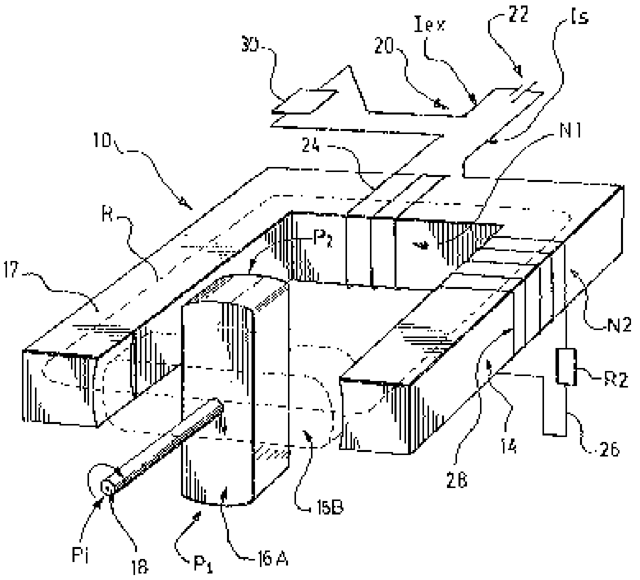


Abstract --- Improvements to electro-magnetic-mechnical machines are disclosed. The improvements relate to improved geometrical structure for rotor/stator combinations; improved efficiency of operation; and d.c. motor/generators that do not require commutation. The improved geometrical structure eliminates the reversal of magnetic flux directions around the face of a rotor. This allows d.c. current to be supplied to, or derived from, the machine without the necessity of commutation. Also, improved efficiency is obtained by supplying the machine with reactive current and also using a filter to remove d.c. components from developed counter-potentials.

CA2033013 (Drawings)

METHOD OF INCREASING THE EFFICIENCY OF AN ELECTRICAL GENERATOR

SZABO, Leslie I.
EC: IPC: H02K3/42; H02P9/14; H02K3/00 (+3)
6-22-1992

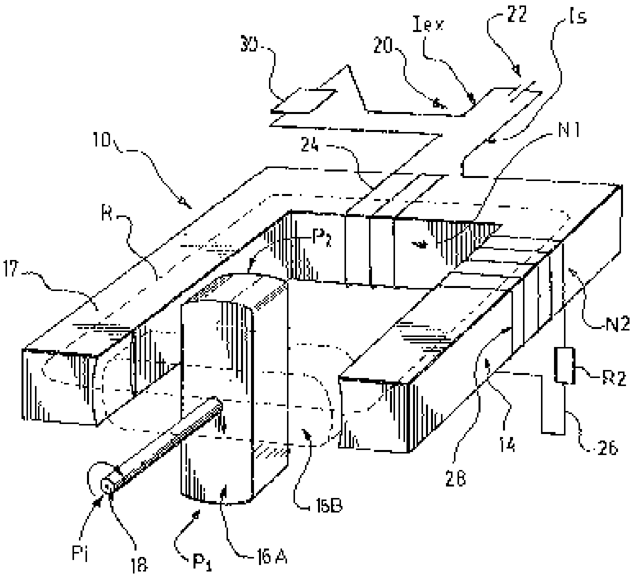


Abstract --- This invention relates to a method of increasing the efficiency of an electrical generator of the type that generates real output power by a change of the reluctance of the magnetic flux path. The efficiency is improved by providing specific components, features and characteristics of the generator in combination in acccordance with a specific relationship so as to reduce the relative effect of the load. Also, the efficiency is improved by recognizing and reducing the effect of an alternating current superimposed on the excitation current.

BR8901236A

COMPENSATION SYSTEM OF THE ALTERNATING CURRENT ELECTRIC GENERATOR

SZABO, Leslie I.
EC: IPC: H02K1/10; H02K3/28; H02K17/28 (+19)
11-13-1989
Also issued as: JP3164051 // PL278317

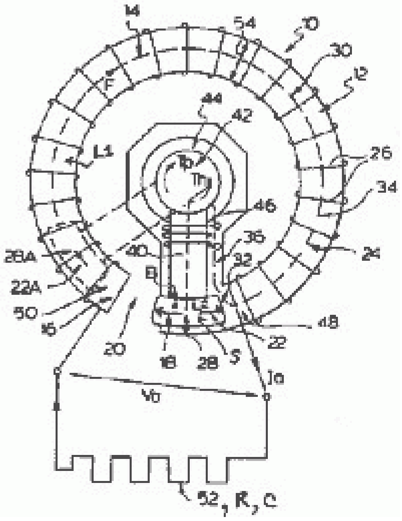


Abstract --- PURPOSE: To improve the efficiency in a generator by eliminating a magnetic flux distortion by a correction conductor or a coil that surrounds or is wound around one portion of a magnetic flux path. CONSTITUTION: A correction coil 30 is provided so that it is wound around or surrounds one portion of a magnetic flux path 12. Also, the correction coil 30 is connected to a power supply 32, and a correction voltage Vc is generated across the correction coil 30, where a correction magnetic flux Fc is induced when the correction current Ic flows into the correction coil 30, and the correction magnetic flux Fc has a constituent that opposes a secondary magnetic flux Fs being induced by a current Ia in an armature coil 22. Also, a correction current Ic has a non-constituent for the correction voltage Vc, thus reducing power input conditions for rotating a rotor 14 as a result of the correction magnetic flux Fc generated by the correction coil 30.

WO9318570

ASYMMETRICAL ELECTRO-MECHANICAL DEVICE

SZABO, Leslie
1993-09-16
Classification: - international: H02K57/00; H02K19/18; H02K19/20; H02K57/00; H02K19/16; (IPC1-7): H02K19/18; H02K19/20;- european: H02K19/18; H02K19/20
Also published as: EP0629317 // FI944074 // EP0629317 // BR9306036 // EP0629317



Abstract --- An asymmetrical, electro-mechanical device (10) comprises a geometrically-magnetically-asymmetrical stator (12) and a rotor (22) which move with respect to each other. There is a stator air gap (20) which makes the stator (12) asymmetrical. The magnetic flux passing from the rotor (22) to the stator (12) is interrupted when the rotor (22) passes by the stator air gap (20). The invention is able to achieve improvements over the prior art electro-mechanical devices, particularly in respect of efficiency.

DD294138

COMPENSATION CIRCUIT FOR ELECTRICAL GENERATORS

SZABO, Leslie I.
EC: H02P9/40 IPC: H02P9/40; H02P9/00; (IPC1-7): H02K3/00
9-19-1991

Paramahamsa TEWARI

Space Energy Generator

Email from Dr W. S. Eidelman (1-03): "Trombly's design is distinctly different from DePalma's. Trombly used the "closed-path" homopolar design, whereas DePalma used an "open-path" design. Trombly's worked, an DePalma's almost worked. Tewari received Trombly's clsoed path design in the mail, from DePalma, who happened onto an international patent application design, without Trombly's knowledge. Because Tewari's theoretical physics were in line with these technologies, and because, as head of nuclear power safety at the nuclear power station near Bombay, he had time, equipment, and funds, he tried out the Trombly/Kahn design, and succeeded..."

Generation of Electrical Power from Absolute Vacuum

by

P. Tewari

The universe can be broadly divided into space and dynamic matter with its motion governed by an intelligent scheme that permits an organized movement of all cosmic material bodies like moons, planets, stars and galaxies In addition to space and matter, another basic entity, energy, was shown to be the constituent of all universal matter as per Einstein's Theory of Relativity, propounded at the start of this century. The interconvertibility of matter and energy extended the domain of universal reality from visible matter to invisible energy. Some recent experiments performed in USA and India and possibly in other countries too, have produced certain astonishing results as per which electrical power can be generated from absolute vacuum or space which is a phenomenon hitherto unknown. This new finding shall force a positive conclusion on substantial reality of space and will further enlarge the domain of basic reality from matter and energy, as known today, to the whole of the universal space.

Electric power is a phenomenon of current flow in an electrical conductor at some voltage or electric pressure. On the nature of electric current, it was discovered by the close of 19th century, that it is constituted of electrons, the subatomic particles that carry basic unit of electric charge. In electric power generators, electrons are produced from atoms of a conductor as it cuts through a magnetic field, and external power is therefore required to produce electrons and make them flow in load circuit. The external sources of power in modern technology of power generation, are mainly thermal, hydroelectric and nuclear. Electric power production, today is a process of conversion of energy from one form to another rather than 'generation' in a true sense. Whereas the newly discovered process of generation of electric power from 'absolute vacuum' does not need any raw material like coal, nuclear fuel or a hydrogen source.

At the face of it, it sounds unbelievable, that vacuum which is considered by current scientific theories as a void or a state of nothingness can ever generate energy out of its own substratum. As per modern physics while 'absolute vacuum' or 'space' can no doubt transmit electromagnetic energy, in the absence of universal matter and its associated energy fields, there can be no energy-content that is ‘reality’ in space. The concept of ether filling all space and atoms as 'vortices of ether' introduced by Rene Descartes(1596-1650) and developed to a great extent by the close of 19th century found no favour in the early 20th century. Though the domain of reality was extended from matter to energy by Einstein's Relativity Theory, yet space devoid of universal matter ceased to have any substantiality. In the new phenomenon of space power generation (SPG) electrical power is produced by rotating at high speed conducting disc magnets or electromagnets, named as N-Generator by Bruce De Palma, a U.S. inventor. In 1978 he discovered that electrical power produced by such a device did not require an equivalent energy input to the drive motor that rotated the N-Generator. The experimental results are in violation of the 'law of conservation of energy' unless it is supposed that the additional energy is generated within the interatomic vacuum or space in the rotating body of the N-Generator. A new theory on space, energy and matter, Space Vortex Theory (SVT) which posits the concept of dynamic space as the most fundamental substratum of reality, and electrons as 'vortices of space' explains the principles behind SPG phenomenon. As per SVT, all universal matter is created from substantial space, just as bubbles, vortices and waves are produced in an ocean of water. It is space that has manifested as planets, stars and galaxies is the conclusion of SVT. Space is more fundamental than matter. There is no point in space that is devoid of reality. Thus the domain of reality already extended from matter to energy by Relativity Theory encompasses the whole of the universal space as per SVT.

A space power generator consists of a soft-iron core on which electromagnet coils are wound. Both the coils and the iron core are rotated together, there being no relative motion between the magnetic field and the soft iron conductor of the core. A vortex of space is formed in the rotating iron, due to which electrical charge is produced, which interacts with orbital electrons of the iron atoms and sets them free. The free electrons are interacted with the magnetic field creating positive and negative polarities between which output power at high current and few volts is drawn.

In the future when the newly discovered principles of SPG are made technically viable, electrical generators of capacity in tens of kilowatts and of sizes comparable with conventional electrical generators will be providing electrical power to remote regions, presently with no power distribution network and for such installations where power requirement of each unit is limited to say about 10~ kW.

The space power generators will require initial drive before becoming self-sustaining, for which conventional diesel engines or battery power will be needed. A number of units of N-generators installed at one location can meet larger load requirements for rural electrification and may be smaller towns as well. Modern technology is well advanced to undertake construction of these new machines that do not require any such specialized items of materials that need long time development. High speed rotation of machines and collection of power at few volts but very large currents will require special attention in the development of space power generators.

On space being filled with energy that created matter, Michelson in 1899 had remarked, "Suppose that an ether strain corresponds to an electric charge, an ether displacement to the electric current, ether vortices to the atoms; if we continue these suppositions, we arrive at what may be one of the grandest generalization of modern science, namely, that all the phenomena of the physical universe are only different manifestations of the various modes of motion of one all pervading substance, the ether". At the close of 19th century, the concept of ether filling all space as introduced by Descartes was about to be recognized as the basic reality. Earlier to Descartes, Thales (624-546 B.C) a Greek philosopher considered water as the primary substance in the universe. The Upanishadic Rishis of Bharat, however, thousands of years ago, proclaimed that 'Akasha’ or space is the first element that gave birth to air. From air was born fire or heat and their various combinations produced water and earth. Very rightly indeed, did the Upanishads discriminate among the five elements pinpointing the akasha as the most fundamental entity potent with energy. This experiment on generation of power from space will reestablish Vedantic philosophy of eternal existence of Akasha as a substratum, the ‘one reality' out of which the cosmic worlds arose. The new science of space power generation will scientifically vindicate the vedantic science on the evolution of the universe.

The N-Generator has been further developed in the USA by De Palma, Trombly and Kahn, who could generate about 45 Kw of power with an input of only 9 Kw, thus getting an incremental power ratio of output further to input, about 5. Bruce De Palma is also further developing his N-generator, trying to achieve perpetual motion. He is quite close to success. The model of space power generator built at Tarapur Atomic Power Station for demonstration of the new principle gave an incremental power ratio of output to input about 2.5. This machine is proposed to be taken to West Germany for demonstration at Hannover in an International Conference for Gravity Field Energy, that will be held there in mid-March 1987. From letters received from USA, West Germany and many other countries, it is evident that the 'over-unity' system which is the name given to space power generation, is catching attention of world scientists and engineers. Being an entirely new technology, it has presently some controversy too associated with its development, especially in USA. The proposed conference at Hannover being organised by Dr Hans Nieper, President, German Association of Gravity Field Energy, West Germany, Hannover, to which I have been invited to deliver a talk on 'Space Vortex Theory' will hopefully be an interesting forum to discuss with scientists and engineers, the new and novel phenomenon of Space Power generation.

Today's need for power is met by man at the cost of ecological balance that nature inherently devises through its forests, rivers, mountains end oceans, and atmospheric belt of air. The pollution of planet through excessive combustion of coal, oil and gases, deforestation and other hazards to the maintenance of clear environment in populated areas, will be prevented to a good extent with the development of power generation from Vacuum.

Maybe it is the final jump of progress in power generation technology that energy is produced from space, which is not only the cleanest resource for power, but will also outlive all forms of cosmic matter both inanimate and animate.

Violation of Law of Conservation of Charge in Space Power Generation Phenomenon

by

P. Tewari
(Chief Project Engineer, Kaiga Project, Nuclear Power Corp., Karwar, India)

(Reprinted from ***Magnets In Your Future***)

Introduction ~

It has been hitherto believed in physics that the total electric charge in the Universe is a constant quantity, and if additional charge appears in some region, it is only at the expense of the charge deficit in some other regions. It is a basic law that electric charge is conserved and cannot be destroyed or created. Precise experiments on a Space Power Generator (SPG) which has been now further developed to demonstrate the commercial viability of the newly discovered phenomenon of space power generation however, totally violate the existing law of conservation of charge, by generating output electrical power much in excess of the input electrical power. Since electric charge is a form of basic energy, the law of conservation of energy will need to be enlarged to incorporate in it the dynamics of absolute vacuum (Ref. 1), which in a state of rotation generates fundamental field to produce electrical charge and energy.

Description of the SPG ~

The SPG shown in **Figure (1)** is a further developed form of the machines described (Ref. 2,3) in earlier issues of this magazine. A non-magnetic shaft interconnects two mild steel rotors on which two electromagnets are mounted. Electric power at 1.5 volt dc and high amperes is drawn fro each unit, with the help of copper-graphite brushes when the machine runs at 2860 rpm directly coupled and driven by an induction motor. The power is drawn between the inner rotor's cylindrical surface and the shaft through dc shunts that enable measurements of high dc current. The SPG weighs about 150 kg and is fabricated out of 120 mm thick mild steel plate. The two units enable generation of power at more than 3 volts dc by appropriate series connections between the two coils. The electromagnet's coils are 16 swg super enameled wire with 216 turns in each coil. The feature that brings improvements (Ref. 4) in this machine is the larger diameter of the rotors that produce higher dc voltage at comparatively lower speed, not exceeding 3000 rpm. Also the twin units with a single coil in each unit double the amount of power.

Test Results ~

The drive motor (DM) takes no-load current of 2.6 amperes (1300 watts) to rotate itself and the SPG to overcome windage and friction at 2870 rpm. The no-load voltage internally generated in each unit of the SPG is adjusted to 1.5 volts dc between the shaft and the inner rotor by the control of the dc excitation current in the two electromagnets' coils connected in series. The excitation current is 31 amperes, the total dc resistance of the two coils being 2.5 ohms. The power given to the electromagnets is 31 x 31 x 2.5, that is, 2400 watts. The two shunts with calibration of 200 amperes for 75 mV are now connected across the two output circuits. The dc currents measured in each circuit are almost equal to 2613 amperes corresponding to 98 mV reading of the shunt. The output electrical power of each unit is 2613 x 1.5 watts, that is 3919 watts. Total electrical power from the two units is 7839 watts. As the SPG is electrically loaded, the current of DM rises to 10 amperes, showing a rise of 7.4 amperes over the no-load current, and corresponding to a rise in input electrical power of 3700 watts.

The load current of the DM of 10 amperes amounts to the total electrical input to the DM of 5000 watts, out of which 1300 watts is utilized to overcome the no-load losses. The remaining electrical input of 3700 watts generates 7839 watts of electrical output power, giving the efficiency of space power generation in this particular machine as 211.8%. Assuming electromagnetic efficiency of the DM as 80%, the efficiency of the electrical energy generation of the SPG will rise to 264.75%

If the excitation power of 2400 watts given to the SPG is deducted from the SPG of 7839 watts, the balance electrical output of 5439 watts still exceeds the total electrical input of 5000 watts by 439 watts, giving the total system efficiency of 105.9% while, in addition the DM-SPG set runs as a perpetual system drawing 1300 watts of power from space.

Quantum of Space Power ~

The quantum of electrical charge produced due to the rotation of space in a rotating electromagnet and the electrical power produced when the power is withdrawn through an electric circuit, as discussed in an earlier article (Ref 2), is given by:

(1) $P = (1.8)\ LNr^2 10^{-5}$ kW

where, P is the power in kW, L is the axial length of the SPG in centimeters, N is the revolutions per second, and ‘r’ is the radius in centimeters of the SPG on the inner rotor surface.

The derivation of the above relation was based on the assumption that the radius of the spherical void at the center of the electron as discussed in space vortex theory (Ref. 1, 2) is 1.5×10^{-11} cm. More precise measurements in space power generation experiments, however, show that the coefficient 1.8 in equation (1) should be 2.5, and the void radius at the electron’s center should be taken as 10^{-11} cm. With these corrections the space power equation (1) now becomes:

(2) $P = (2.5)\ LNr^2 10^{-5}$ kW

Substituting the values, L = 12, N = 47.6, and r = 11.43 in Eq. (2), P = 5.85 kW.

Since there are two units of the SPG on the shaft, total power from the two units will be 11.7 kW, which is 1.5 times the output power drawn from the machine in the above test. With additional brushes and reduced brush contacts at about 3000 rpm, the above machine will have capacity to produce about 12 kW of power. If the SPG is driven at 6000 rpm both the voltages and currents will be doubled, producing 4 times output of about 48 kW. Since the excitation power remains constant, much higher total system efficiency is expected though the efficiency of the SPG as computed above will remain constant at 211.8%.

Conclusion ~

The mass-energy equation of Einstein brought forth a universal law that an electron like all matter contains energy in its structure. A further enlargement of this law is that the electron itself is energy, where "energy" in physical terms is a state of vacuum in rotation. Even at ordinary speed of rotation of an electromagnet, the interatomic space of the iron core develops velocity fields of vacuum that qualitatively act like additional charge within the rotating system and liberate orbital electrons of the iron atoms. The interaction of the magnetic field and free electrons form polarities (Ref. 2, 3). It is possible to commercially develop a machine that can not only rotate itself perpetually but also generate additional electrical energy in kilowatts and higher range. The law of conservation of charge and the law of conservation of energy are applicable within the systems confined to material interactions alone and not to the medium of space which is a dynamic entity that can rotate and create charge at ordinary speeds, and can rotate and create electrons at the speed of light.

References ~

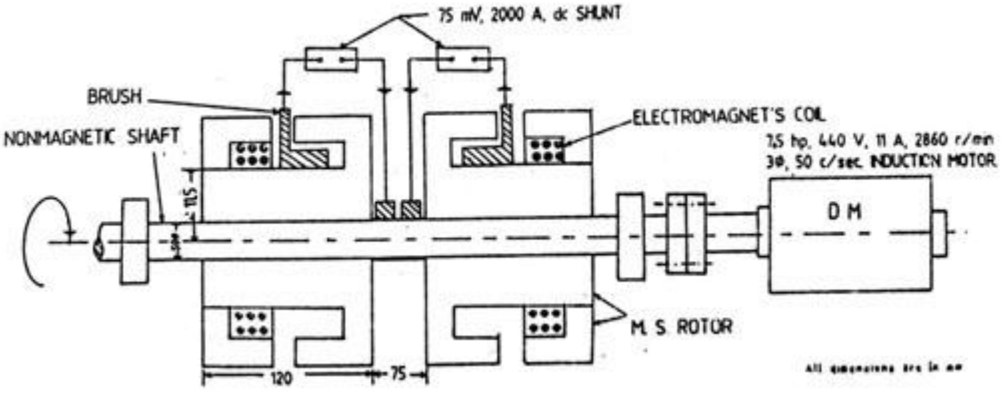
1) Paramahansa Tewari: *Beyond Matter*; 1984, Printwell Publications, Aligarh, India.

2) P. Tewari: *Magnets In Your Future* 1(8), August 1986; P.O. Box 580, Temecula, CA 92390.

3) P. Tewari: *Magnets In Your Future* 2(12), December 1987.

4) Bruce DePalma: "Report on the Initial Testing Phase of DePalma Energy Corporation"

Figure (1): Space Power Generator ~



India Patent Specification

(12 August 1994)

High Efficiency Space Power Generator

Paramahamsa Tewari

Nationality: Indian
Address: Project Director, Kaiga Project, Nuclear Power Corporation (Centre-1, World Trade Centre, Cuffe Parade, Bombay 400 005)

The following specification particularly describes and ascertains the nature of this invention and the manner in which it is to be performed:

Scope of Invention:

Generation of low dc voltage at high current and high efficiency is the field covered by this invention.

History of the Invention:

In 1974 a generalized theory of matter and energy which showed that energy can be developed in vacuum by positing electron’s structure was proposed by the writer and the same was registered with the Copy Right Office, Government of India (Registration number L6823/ 74). The writer also had published his works entitled, "The Substantial Space and Void-nature of Elementary Material Particles", in 1977, and "Space Vortices of Energy and Matter", in 1978. Bruce DePalma, erstwhile lecturer, MIT, USA, having learnt then on above theoretical works wrote to the writer in May 1978 and sent some details of his experiments on rotation of conducting disc magnets by which electrical power could be generated at high efficiency. Since then and more vigorously since 1985, the writer performed many experiments to pinpoint the source of generation of additional power, and named the machines developed by the writer as "Space Power Generator". Bruce DePalma had named his own system of rotating magnets as "N-Generator" based on his discovery of "N-effect". In an article, "On the possibility of Extraction of Electrical Energy Directly from Space", Bruce DePalma wrote in April 1990, "A parallel program of Space Power Generators (SPG) has been taking place in India since 1978. P. Tewari of the Indian Atomic Board had developed a generalized theory of matter and energy, which showed that energy could be developed from the vacuum by positing a structure for electron. Having received the experimental results of the ‘Sunburst’ machine he instituted an R&D program to develop practical versions of the SPG for general use. Tewari has constructed N-machine/SPG apparatus which produces excess output power over that required to rotate the generator when all losses have been subtracted from the output generated power".

The German Association of Gravity Field Energy invited the writer to an International Conference held at Hannover in 1987 to deliver a lecture on his research on "Space Power Generation" and awarded the first prize for the demonstration of a working model of SPG. Also, on his new field of research, many papers by the writer have been published in the Proceedings of the International Conferences in USA and Italy where he was invited to deliver invited talks. The present patent application pertains to "High Efficiency Space Power Generator (SPG)" invented by the writer through his experiments given in the above published papers.

In electromagnetic induction, which is the principle used in conventional dc generators, electromotive force (EMF) is induced when magnetic flux cuts a conductor due to motion of the conductor relative to the flux or vice-versa. Also, EMF is induced when flux linkage with the conductor changes with time. Faraday in 1832 rotated together a copper disc and a magnet with the magnetic field at right angles to the surface of the copper disc, and noticed the generation of EMF between the periphery of the disc and its axis, thought here was no relative motion between the copper disc and the magnetic field. The effect noticed by Faraday does not appear in engineering textbooks and therefore is not known to many. DePalma's experiments too are similar to Faraday's in the sense that an electromagnet, with a cylindrical core and the electric coil integrally mounted on it, is rotated to produce EMF between its periphery and the axis of rotation. In this system the efficiency of electrical power produced as discovered by Bruce DePalma is at very high efficiency. The writer discovered through his experiments that in a rotating integral assembly of cylindrical iron core and electric coil mounted around it, EMF is induced also in radial conductors in the core and without being in contact with the core except at the central axis of rotation, despite the fact that it has no contact with the steady magnetic field in the core. This unique effect of magnetic induction was published by the write in an article entitled "Electromagnetic Induction of Space Substratum", page 16, Jan-Feb 1992, Journal of Borderland Research, CA, USA, and is the basic concept utilized in the development of the present invention. To summarize:

1. Faraday discovered that electromagnetic induction, in a co-rotating assembly of conducting disc and disc magnet is possible.

2. Bruce DePalma discovered the above effect of Faraday and also that electrical power produced through such a co-rotating magnet field-conductor system is at very high efficiency.

3. The writer discovered that electromagnetic induction in such a co-rotating magnetic-conductor system can take place even when the radial conductor embedded in the conducting disc is neither in contact with the magnetic field nor is cut by the magnetic field.

The development of this invention took place due to the above new phenomena of electromagnetic induction.

Brief description of the Invention:

Refer to **Figure 12**. An electric coil (15) is rigidly mounted on a cylindrical iron core (17) and rotated with a drive motor. Radial non-magnetic stainless steel studs (7, 16), welded to the shaft, pass through the inner cylindrical rotors (5, 17) without touching the same. The stainless steel studs are grouped in pairs, and each pair shares a common hole in the inner rotor. Half the stainless steel studs in one plane terminate on a common non-magnetic metal ring (inner ring) (8) encircling the inner rotor (5). Fixed carbon brushes (12) slide on this ring and form one of the output terminals (10) of the SPG. The remaining stainless steel studs, also in one plane, terminate on another non-magnetic metal ring (outer ring) (11) encircling the inner core (17) and also the end cover (14) and mounted in between the air gap (28) created due to the two halves of the outer iron covers (9, 14). Fixed brushes (29) on this outer ring form the other output terminal (13) of the SPG. The iron core is magnetized by feeding excitation power to the electrical coil through slip rings (18) on the shaft (3). Thought the steady magnetic field does not pass through the non-magnetic stainless steel studs and also does not change with time, yet the stainless steel studs (7, 16) develop dc voltage that appears between the inner and outer rings (8, 11). When power is drawn between the above rings through fixed brushes on them, both the outgoing and incoming dc currents pass through the air gap (18), thereby canceling the magnetic effect due to the load current to a good extent. Similarly, the pair of stainless steel studs in common holes in the inner core carry dc currents in opposite directions and thus cancel their magnetic effects within the core. The above cancellation of magnetic effects due to load current in the outer air gap and the slots in the inner core leads to high efficiency of power production in the SPG.

Further description of the present invention is given now in the following specifications and the attached drawings.

Brief Description of the Drawings:

Figure 1 is the longitudinal section and end view of the shaft.
Figure 2 shows the transverse section, end view and plan of the inner rotor-2.
Figure 3 shows the transverse section, end view and plan of the inner rotor-1.
Figure 4 shows the section and end view of the non-magnetic stainless steel outer ring.
Figure 5 shows the end view and cross section of the non-magnetic stainless steel outer ring.
Figure 6 and **Figure 7** show the non-magnetic stainless steel studs elevation and end views.
Figure 8 shows the end view and cross section of the end cover-1.
Figure 9 shows the end view and cross section of the end cover-2.
Figure 10 shows the cross section and end view of the brush assembly-1.
Figure 11 shows the cross section and end view of the brush assembly-2.
Figure 12 shows the transverse section of the assembled SPG.

Detailed Description of the Drawings:

Figure 1 shows the shaft of the SPG, which should preferably be made with non-magnetic material. The shaft has a central longitudinal hole to thread wires for the electromagnet. It also has eight numbers of radial tapped holes in which non-magnetic stainless steel studs are fixed. The shaft is stepped to accommodate the inner rotors as discussed below and also to accommodate bearings. **Figure 2** and **Figure 3** show details of the inner rotors that are made of high magnetic permeability mild steel and are shrunk fit on the aforesaid shaft. Inner rotor-2 in **Figure 2** has provision of a slant hole for threading wires to the electric coil. Radial slots as shown in the end views of **Figure 2** and **Figure 3** are cut to accommodate four numbers of stainless steel studs in each inner rotor. The inner rotors mounted on the stainless steel shaft are so disposed with each other that four common holes are formed by eight numbers of slots to accommodate eight numbers of stainless steel studs, two studs falling in each hole. The assembly of inner rotors on the shaft is carried out after fixing the studs to the shaft. All the eight studs are so fixed that they do not touch the side of the slots in the inner rotors and make contacts only with the shaft to which they are tightly screwed. The studs after fixing to the shaft should be tack welded to the shaft for better electrical continuity between the pair of studs occupying a common hole.

The rotors butt at each other and their mating surfaces should be smoothly finished so as to avoid any air gap in between. Four numbers of through bolts of mild steel and with good magnetic permeability hold the two inner rotors together to avoid splitting of the inner rotors during high-speed rotation. After heat shrunk fitting on the shaft, the inner rotors may be tack welded to the shaft to provide rigid mechanical connection between the shaft and the inner rotors.

End Covers:

Figure 8 and **Figure 9** show the details of two end covers that are made of high permeability mild steel and are threaded on to the inner rotors as shown in **Figure 12**. The end covers are mounted in such a way that an air gap is left in between them for the current collecting system (to be described below) to pass through the air gap. The cross section of the end covers at the air gap and throughout should be not less than the cross section of the iron core. After assembly, the end covers are locked with suitable mild steel bolts (6) joining them with the respective inner rotors so as to avoid unscrewing the end covers during rotation.

Magnetic Circuit:

The electrical coil (15) wound with super enamel wire (SWG number 14 or 16) and of suitable size to exactly fit tightly in the recess created by the inner rotor and end cover rigidly mounted on the inner rotor when energized magnetizes the iron core and end covers, setting up in the core an axial magnetic field that has a return path through the end covers and passes through the air gap (28). The air gap should be just sufficient to accommodate the parts of the current collection system and yet large enough to avoid rubbing of the fixed brush assembly plate (10) with the rotating outer ring (11).

Current Collection System:

Figure 4 shows the stainless steel inner ring that is welded to the aforementioned stainless steel studs (four numbers) lying in one transverse plane and fixed to the shaft. Welded joints between the studs and the inner ring should provide good electrical conductivity. Copper-graphite brushes fixed to the brush-assembly plate-1 (**Figure 10**) slide on the stainless steel inner ring. The brush-assembly plate made of aluminum and of good electrical conductivity and passing through the air gap is fixed to the foundation plate (27) of preferably non-magnetic material and is kept electrically insulated from it through the insulating brush (24). Magnetic mild steel plate can also be used as a base plate.

The remaining four numbers of stainless steel studs, also lying in a transverse plane, are welded to the stainless steel out ring (**Figure 5**) that passes through the air gap and rotates with the rigid assembly of stainless steel studs, inner rotors, electrical coil, and end covers. The welded joints between stainless steel studs and the outer ring should provide good electrical conductivity. Fixed copper-graphite brushes in the outer brush-assembly-2 plate (**Figure 11**) slide on the rotating outer ring (11), **Figure 12**. The outer brush-assembly plate (13), **Figure 12**, is made of aluminum with good electrical conductivity and fixed on to the foundation plate and kept insulated from it.

Generation of Power in the SPG:

The generation of voltage in the SPG is discussed in the writer's article, "Space Power Generation" in *Explore!* 3 (4): 62-65 (1992), and in other articles by the writer. In brief, the axial magnetic field B in the core during rotation of the inner rotors, electric coil and end covers, induces in the rotating studs dc voltage V_1 with respect to the shaft. The voltage is given by:

$$V_1 = 0.5\ WBR^2\ 10^{-4}\ \text{(cgs units)}$$

Where W is the angular rotational velocity, R is the radius of the inner rotor and B is the axial magnetic field strength in the inner rotor. In all the eight studs, V_1 is induced. The brush-assembly plate through sliding brushes is in contact with the inner ring jointed to the studs and therefore also has the voltage V_1 on it.

The outer ring passing through the air gap and being in rotation develops dc voltage V_2 with respect to the shaft, which is given by,

$$V_2 = B_0W\ (R_2^2 - R_1^2)10^{-4}\text{(cgs units)}$$

Where B_0 is the magnetic field in the air gap, W is the angular velocity and R_2 and R_1 are the outer and inner radii of the end covers. The dc voltage appearing on the rotating outer ring with respect to the shaft is given by $V_1 - V_2$

. Thus the difference of dc potential between the two fixed brush-assemblies is $V_1 - (V_1 - V_2)$, that is, V_2 which is the open circuit dc terminal voltage of the SPG.

When load is connected between the terminals of the SPG, both the outgoing current and the return current pass through the air gap and also through the common holes in the inner rotor. The magnetic fields created by oppositely flowing load currents cancel each other to a good extent as the studs are closely spaced in the slotted holes. The outer ring (with radial slots) within the air gap has its current in a direction opposite to the current flowing in the brush-assembly plate in its close vicinity, and therefore appreciable nullification of magnetic effects takes place within the air gap also. In a conventional homopolar generator, unlike in the SPG, there is relative motion between the conductor and the magnetic field. Also, there is no nullification of the magnetic fields due to the outgoing and return load current, and hence the efficiency of the SPG is very high compared to a conventional homopolar generator.

The dimensions in the drawings pertain to an existing SPG on which experiments have been conducted. However, if the diameter of the inner rotor is chosen to be nine inches and the electromagnet is excited to produce 1.6 Tesla in the iron core, the voltage developed between the terminals of the machine when it is run at 6000 rpm will be about six volts dc. Experiments show that the SPG produces steady dc current of about three kilo amperes at three volts dc with carbon-graphite brushes. The dc current produced at 6000 rpm will be about 6000 amps and therefore power produced by the SPG will be 36 kW at very high efficiency.

Figure 1: Shaft (Part #3) ~ Material: stainless steel; Qty: 1; Scale 1:4; All dimensions are in millimeters

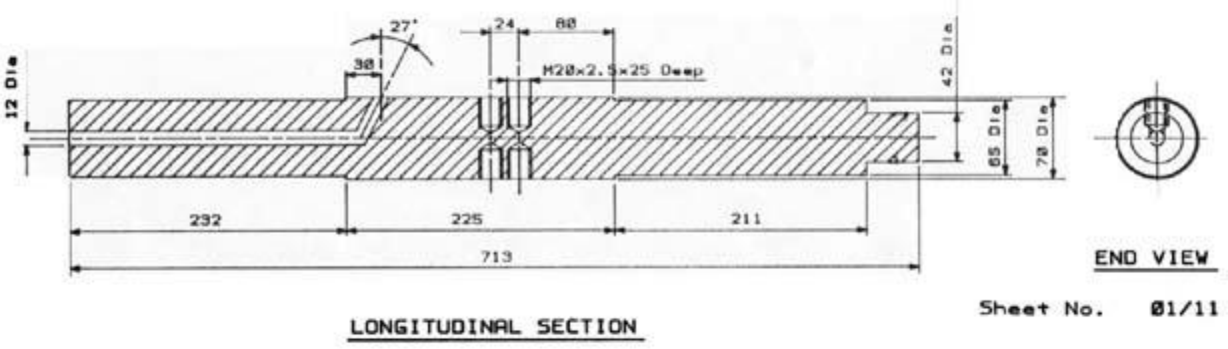


Figure 2: Inner Rotor - 2 (Part # 17) Material: mild steel; Qty: 1; Scale: 1;4; All dimensions are in mm.

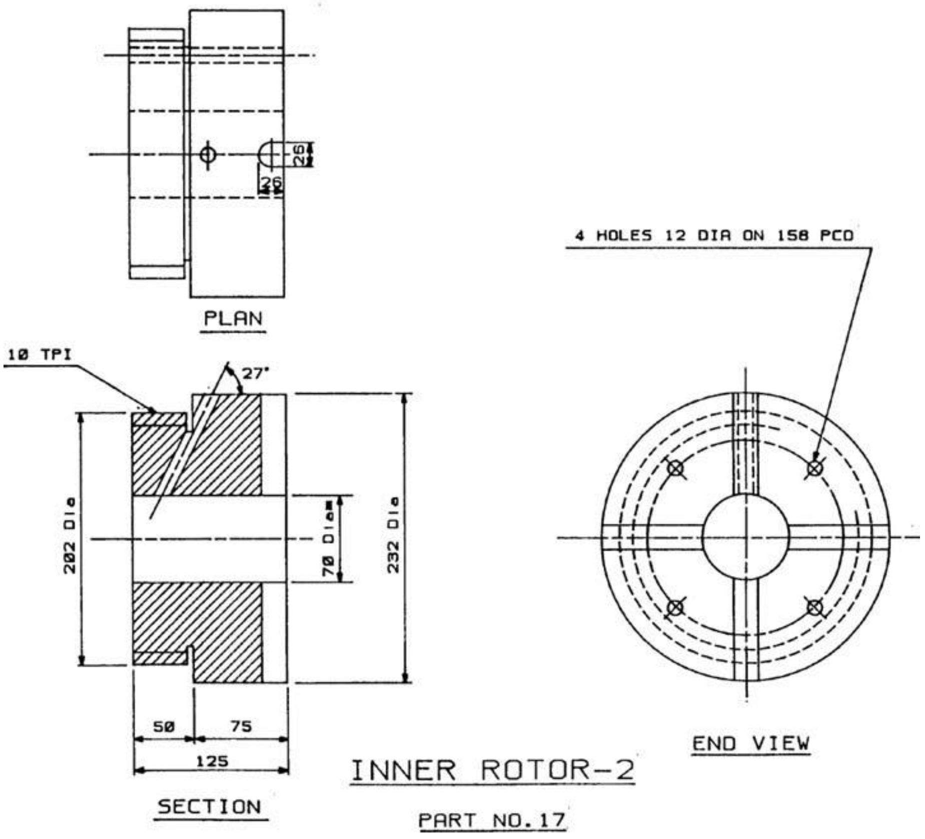


Figure 3: Inner Rotor - 1 (Part #5)
Material: mild steel; Qty: 1; Scale: 1:4; All dimensions are in mm.

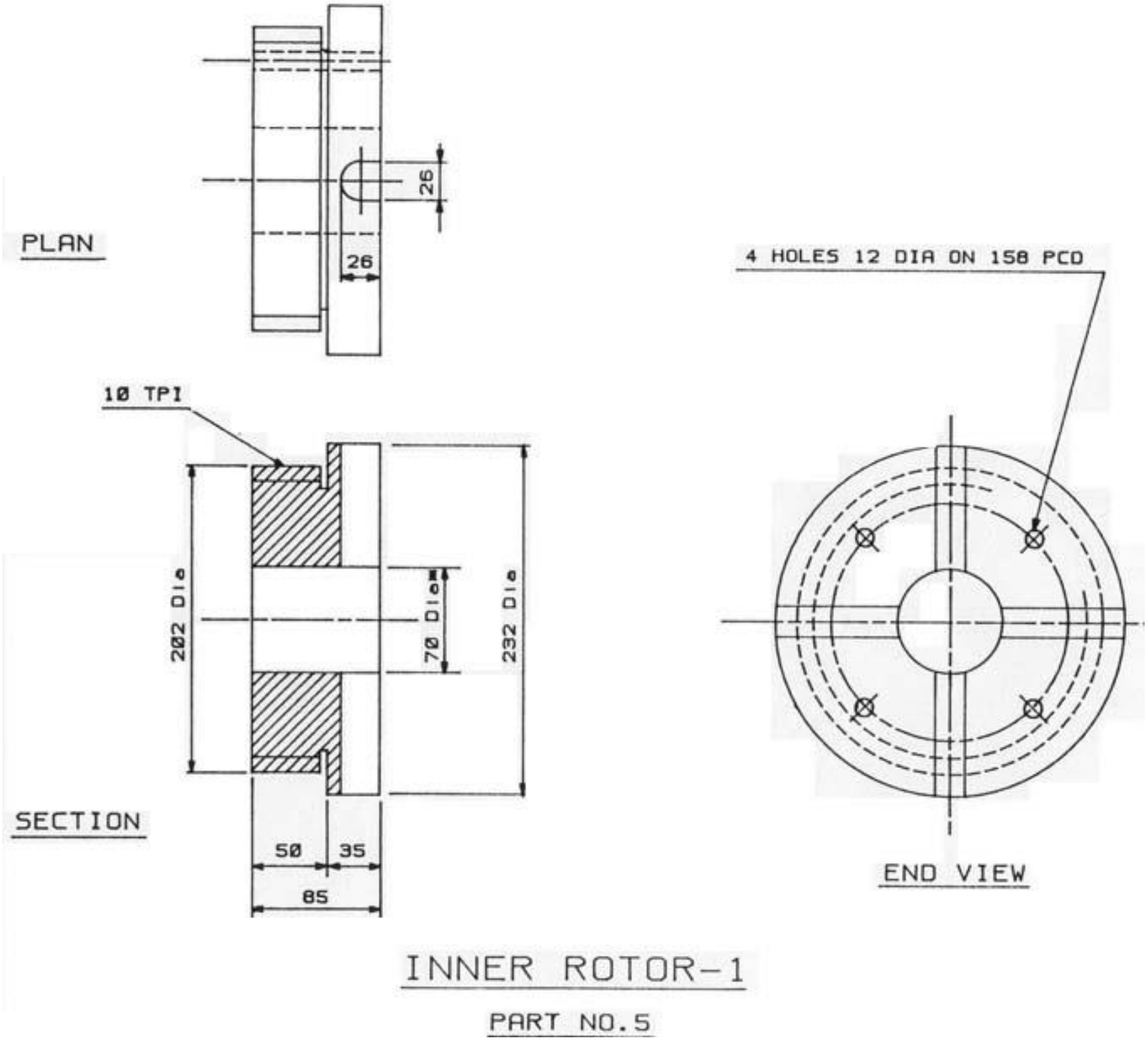


Figure 4: SS Inner Ring [Non-Magnetic] ~ (Part #8)
Material: Stainless steel; Qty: 1; Scale: 1:4; All dimensions are in mm

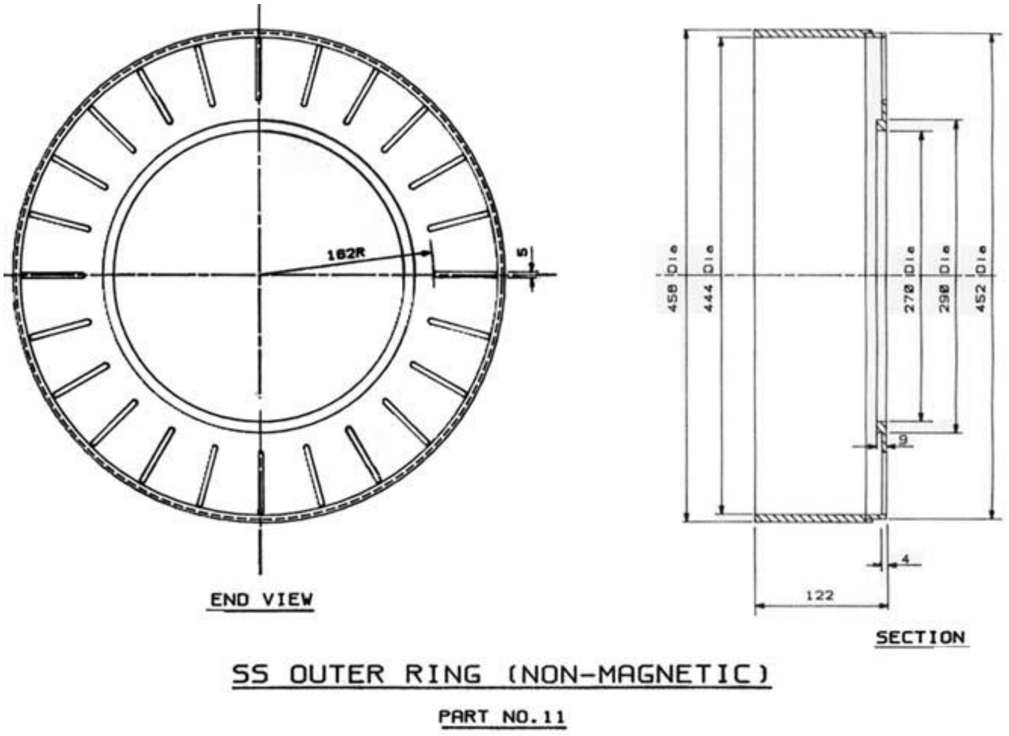


Figure 5: SS Outer Ring [Non-Magnetic] ~ (Part #11)
Material: SS; Qty: 1; Scale: 1:4; All dimensions are in mm.

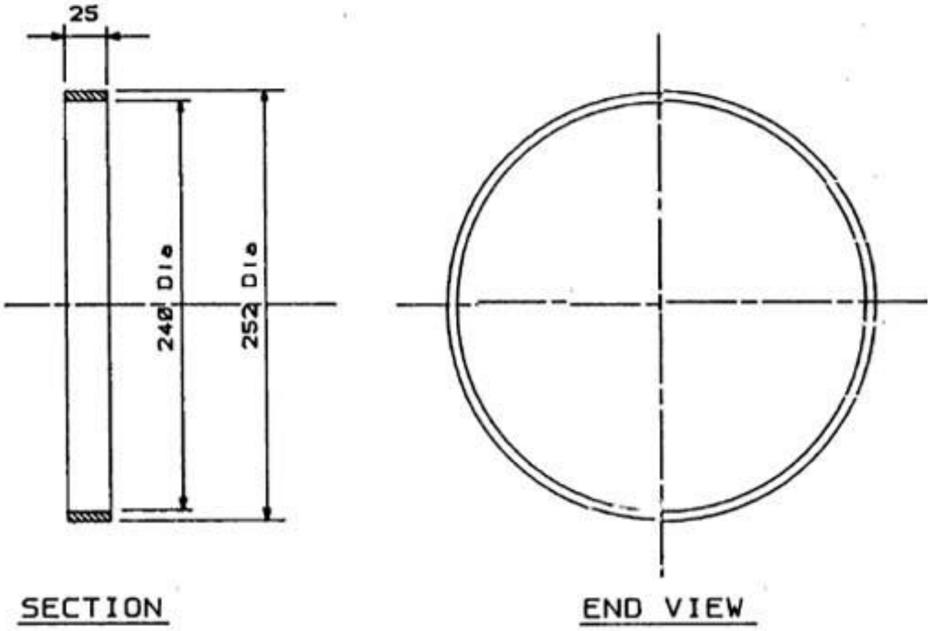
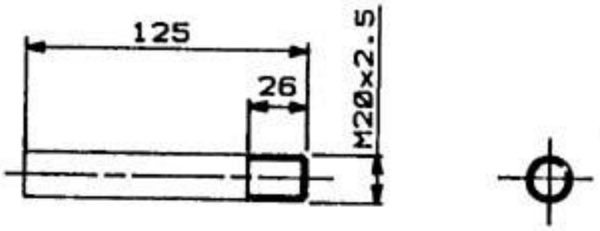


Figure 6:: SS Stud-1 [Non-Magnetic] ~ (Part 16)
Material: stainless steel; Qty: 4; Scale: 1:4; All dimensons are in mm

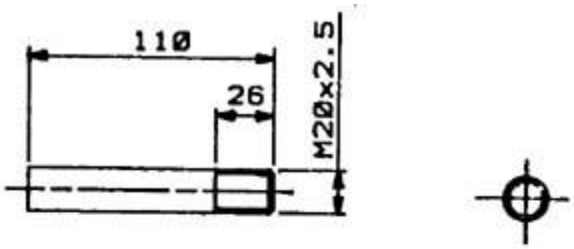


SS STUD-2 (NON-MAGNETIC)

PART 16

FIG-6

Figure 7: SS Stud-1 [Non-Magnetic] ~ (Part 7)
Material: stainless steel; Qty: 4; Scale: 1:4; All dimensions are in mm



SS STUD-1 (NON-MAGNETIC)

PART 7

FIG-7

Figure 8: End Cover-1 (Part #9)
Material: stainless steel; Qty: 1; Scale: 1:4; All dimensions are in mm

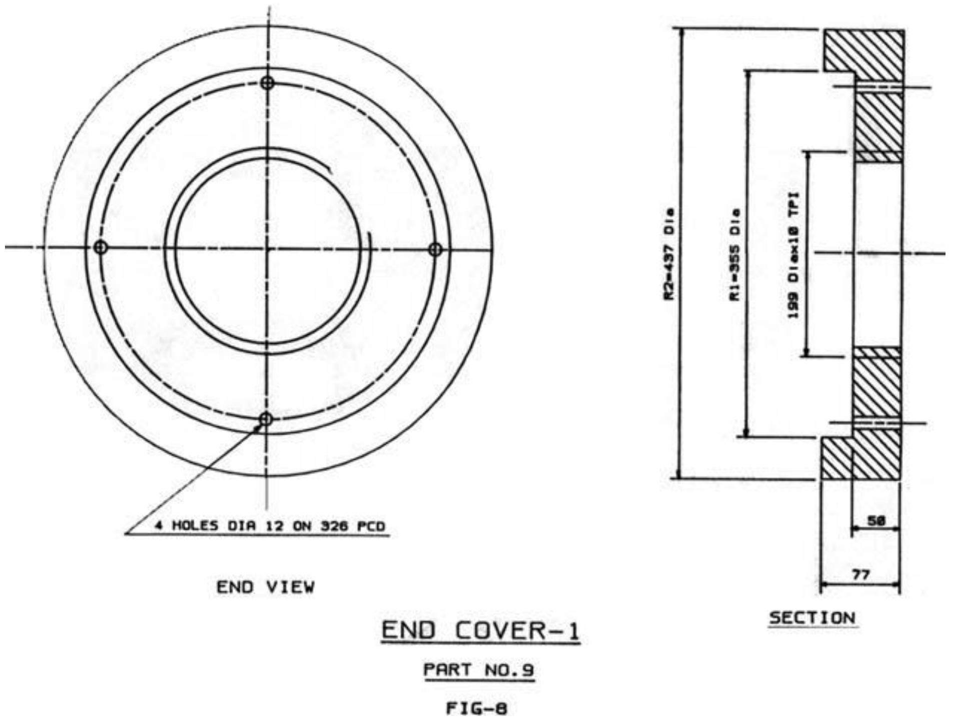


Figure 9: End Cover-2 (Part #14)
Material: mild steel; Qty: 1; Scale1:4; all dimensions are in mm

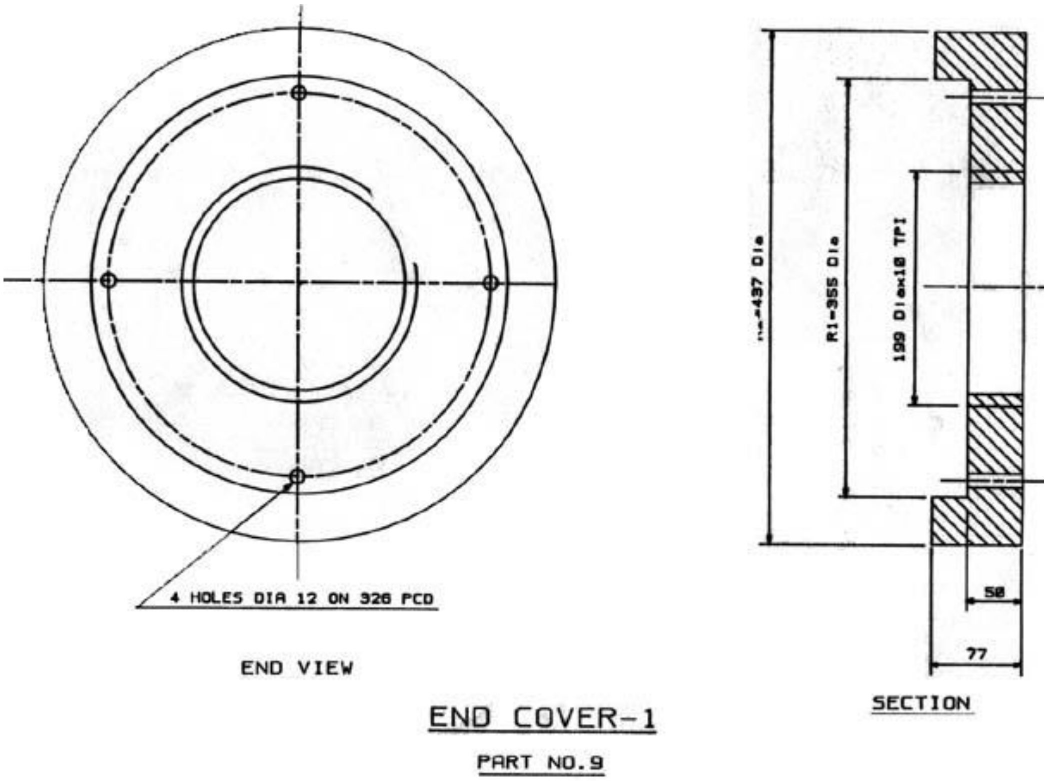


Figure 10: Brush Assmebly-1 (Part # 10)
Material: Aluminum; Qty: 1; Scale: 1:4; All dimensons are in mm

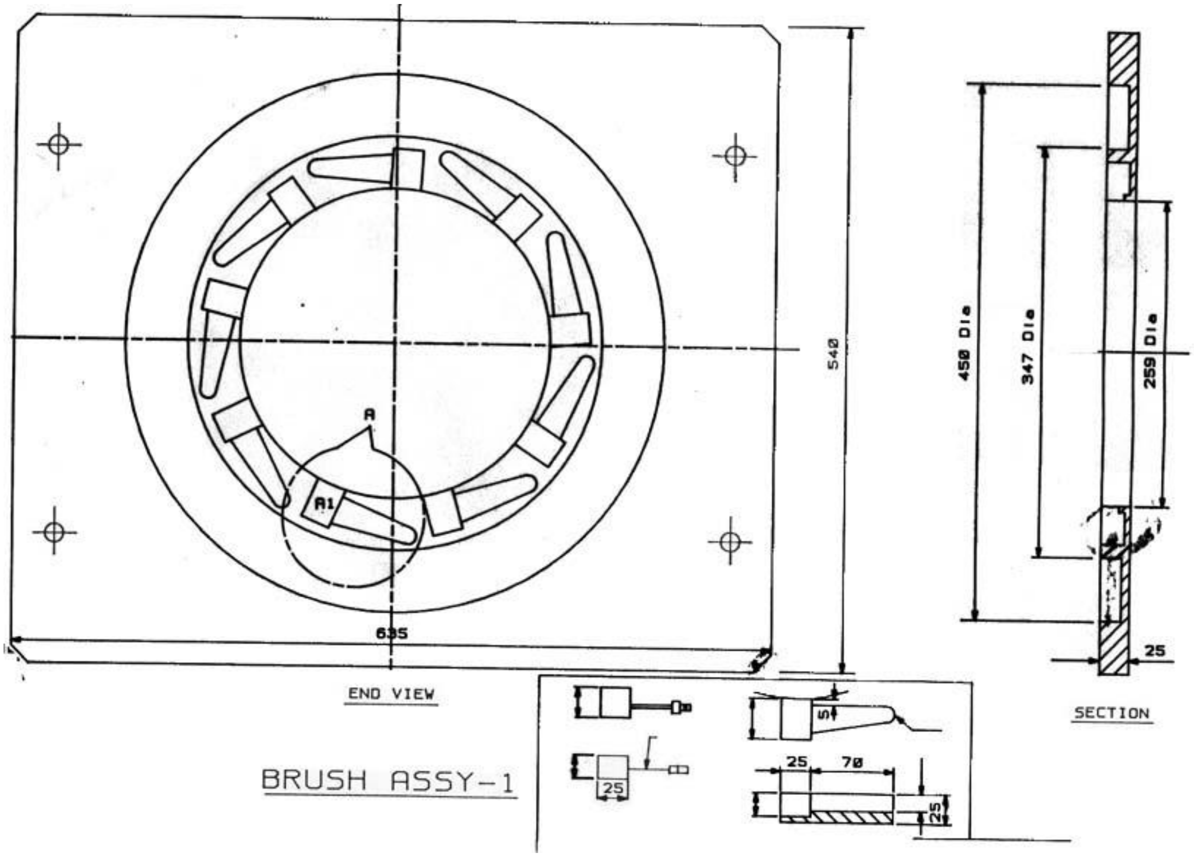


Figure 11: Brush Assembly-2 (Part #13)
Material: Aluminum; Qty: 1; Scale: Not to scale; All dimensions are in mm.

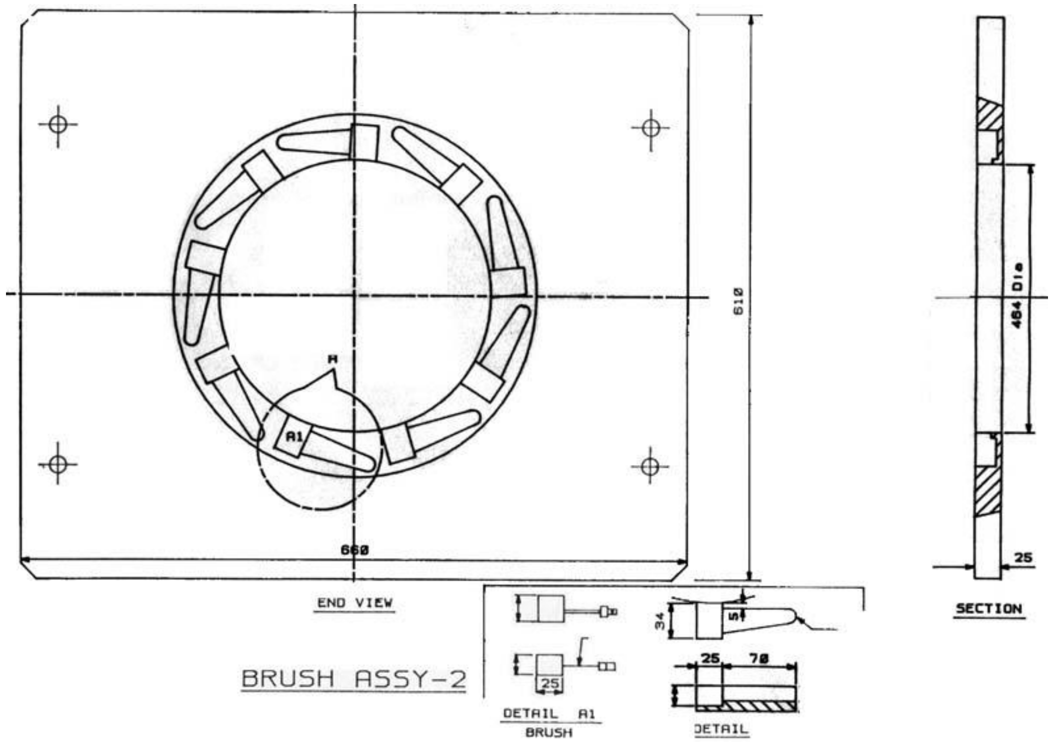
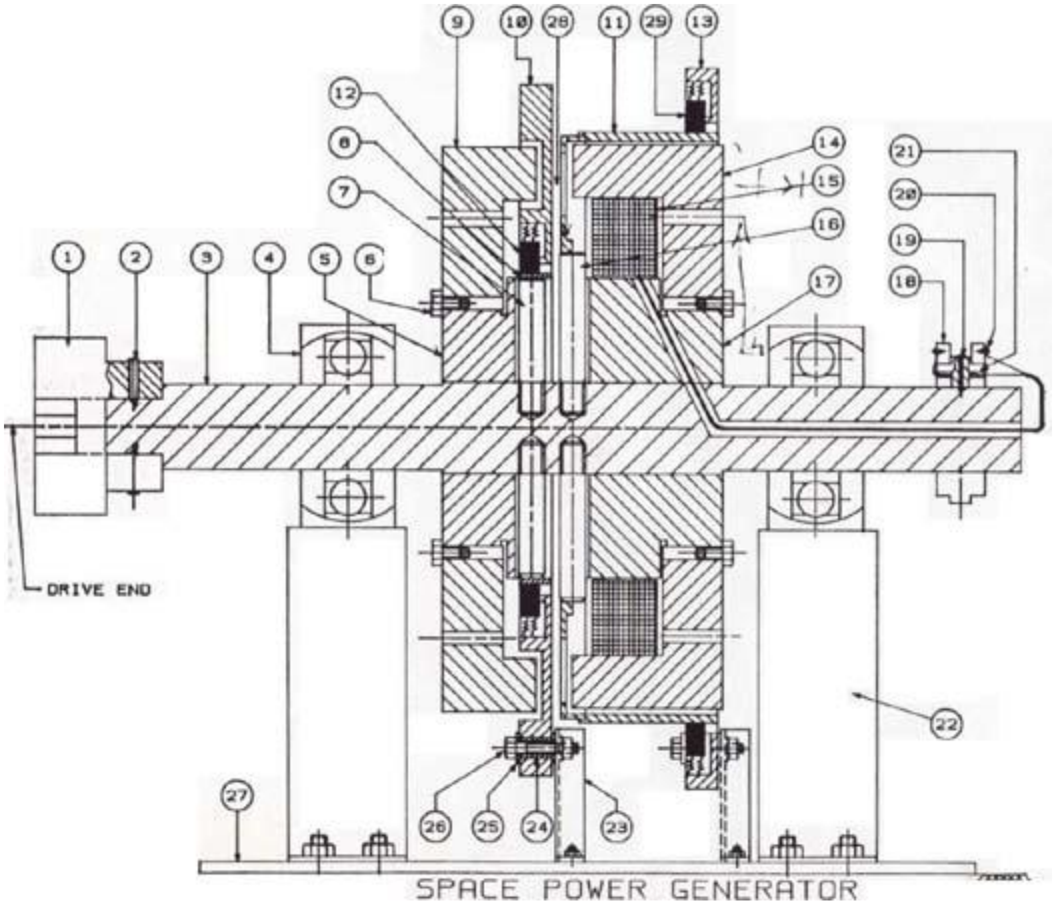


Figure 12: Space Power Generator
(1) Coupling; (2) Screw; (3) Shaft; (4) Bearing; (5) Inner Rotor; (6) Hex Bolt-1; (7) SS Stud-1; (8) SS Inner Ring; (9) End Cover-1; (10) Brush Assembly-1; (11) SS Outer Ring; (12) Brush; (13) Brush Assembly-2; (14) End Cover-2; (15) Electric Coil; (16) SS Stud-2; (17) Inner Rotor-2; (18) Slip Ring; (19) Grub Screw; (20) Terminal Connection; (21) Insulating Ring; (22) Bearing Support; (23) Non-magnetic Support; (24) Insulating Bush; (25) Inner Washer; (26) Hex Bolt-2; (27) Foundation Plate; (28) Air Gap; (29) Brush.



Physics & Technology of the Phenomenon of Space Power Generation

by

P. Tewari

(Reprinted from: *The Journal of Borderland Research*, May-August 1990, pp. 37-40)

Introduction:

Scientific debates on the nature of space (absolute vacuum) around the start of the 20th century took a general view that space serves to transmit fields (electromagnetic, gravitational) and, beyond that, it has no independent existence of its own as an entity that can generate energy in some form which enables it to be termed as a "real" physical entity. In other words, the generally accepted position then taken was that space is an empty extension of ""nothingness without any physical attributes in which fields are somehow transmitted at enormous speed. Many refutations to the above view both experimental and theoretical, and claims on the existence of ether, that is, space with physical attributes, could not provide an alternative theory so as to change the widely accepted position of the nonphysical nature of space.

A search for the most basic and universal source of fields of matter in general, and electron in particular, has led to the formulation (by the writer) of space vortex theory (SVT) in which physical; space has been postulated (Ref. 1), and it has been shown that the primary function of space is to generate cosmic matter. Thus as per SVT, quite contrary to the modern view of physics, mater apart from space has no independent existence.

Basics of Space Vortex Theory (SVT):

The absolute vacuum in SVT is a nonmaterial and mobile entity -- an incompressible, nonviscous, massless and continuous medium and its dynamical field equations or laws are formulated introducing the concept of velocity fields, that is, velocity of space points in a vortex of mobile space. An electron is postulated to be an irrotational vortex of space with a spherical central void of sub-microscopic radius of about 10^{-11} centimeter, within which the space with physical attributes develops discontinuity of energy field (**Figure 1**). The property of electric charge of electron and its electrostatic field can be shown to be the effect of rotation of space around the electron's center. The mass property of electron is seen to be arising due to the creation of a fieldless spherical void (hole) at the electron's center where space rotates at the limiting speed of light. New equations that quantify mass and charge of electrons and enable the computation of energy for its creation and annihilation are derived. It also follows from the theory that the electron is the only fundamental particle that can build all the other stable particles of matter of the universe.

The generation of mass of electron from the mass-less medium of space is the unique feature of SVT, as it does away with the normal trend of scientific convention that every conceivable entity must necessarily have mass if it has to be real, that is, if it has to possess energy. An irrotational vortex of space with maximum speed of rotation less than the speed of light will possess zero mass, and yet it will have electric charge due to velocity fields produced by space rotation. The creation of mass is essentially creation of void at electron's center due to limiting speed of rotation and breakdown of space. The velocity field at a point in the neighborhood of electron determines the electric potential there. The breakdown of space at electron's center gravitationally energizes the whole universe creating gravity field and gravity potential. The decrease in gravity potential at a space point due to oscillation/movement of electron/matter creates electromagnetic field (light) at that point. When an electron is annihilated, it is decaying gravity potential at each point in space that is seen as light.

The property of zero viscosity and mobility of space up to the speed of light in combination with the central void of electron, results in inertia property of electron in its motion. The inertia property for all matter also arises due to the above effect since the electrons are the fundamental particles of all stable particles of matter.

Fundamental Equations on Electron's Charge & Mass:

Following fundamental equations derived from the void-vortex structure of the electron (Ref. 1) are relevant to the computation of rotational charge energy produced due to rotation of space in the interatomic region of a rotating electromagnet as shown in **Figure 2**.

Refer to **Figure 1**, which shows spin of space at void-space interface. At the elemental surface, tangential velocity of space is:

$wr_e \sin q$,

which increases to its limiting value c at the diametrical section of the interface. The basic definitions for electron's charge, rest-mass and dielectric constant for vacuum are:

(1) $q_e = (pi /4)(4pi\ r_e^2 c)$

where

q_e is the electron's charge

r_e is the radium of spherical void

c is the light speed in vacuum.

Hence, it follows that the dimensions of q_e are:

$[q_e] = L^3/T$

(2) $m_e = (4pi/3) r_e c$

where m_e is the electron's rest mass.

Hence, it follows that the dimensions for mass m_e are:

$[m_e] = L^4/T$

Dielectric constant for vacuum E_o is given by

(3) $E_o = pi/2c$

Dimensions for $E_o$are:

$[Eo] = T/L$

Substituting in Eq. (1) experimentally determined value, $q_e = 4.8 \times 10^{-10}$ CGSE units, and supposing the value of void radius $r_e = 10^{-11}$ cm,

(4) $cm^3/s = (16)$ CGSE.

Generation of Space Power:

As shown in **Figure 1**, for computation of electron's charge at the interface, the product of speed of spinning space at the elemental surface and its area dA is taken. This indicates that for all values of VF varying from zero to c, charge is produced. Therefore rotation of cylindrical surface A of an iron core (**Figure 2**) of an electromagnet will create in its interatomic space rotational charge (q_r), given by similar relationship as for electronic charge. Neglecting the area occupied by atomic nuclei and orbital electrons at surface A,

(5) q_r = space surface x rotational speed = (2pi rL)(2pi rN) = 4pi^2r^2LN

[pi = 3.141... of course]

Converting q_r to CGSE units, from (4) and (5),

$q_r = 64\ \text{pi}^2r^2LN$

Number of electrons (N_e) equivalent to q_r will be:

(6) $N_e = 64\text{pi}^2r^2LN/q_e$

Energy in the electrostatic field of N_e electrons is computed as below:

Electrostatic energy (U) of a point-charge as per computational physics is given by:

(7) $U = [q_e^2/2(4\ \text{pi}\ E_o)][1/r]_0^\infty$

where r, the radial distance from the charge center, varies from zero to infinity. With void-center of electron, the minimum value of r is taken as r_e (and not zero) since void is a fieldless zone (The present difficulty in physics of infinite quantity of energy in the field of a point-charge is avoided with void-center structure of electron).

Substituting the value of E_o from (3) in (7) and from (1) expressing q_e in terms of r_e and c,

$U = (\text{pi}/4)^2\ (4\text{pi}\ r_e^2c)^2/2(4\text{pi}^2/2c)r_e = (3\text{pi}/16)(4\text{pi}\ r_e^3c/3)c^2$

from which (2) becomes

(8) $U = (3\text{pi}/16)m_ec^2$

Net energy produced from rotational charge from (6) and (8),

(9) Net energy = $(3\text{pi}^3/4q_e)(m_ec^2)r^2LN$

Substituting the values, $q_e = 4.8 \times 10^{-10}$ CGSE units, $m_e = 9 \times 10^{-28}$ gram, $c = 3 \times 10^{10}$ cm/sec in (9),

(10) Net energy = $(1.98)\text{pi}\ r^2LN\ 10^{-5}$ kW second.

The electric charge energy developed in any rotating body due to space rotation within the body is given to (10). If the body in rotation is an electrical conductor (iron, copper) then the orbital electrons of the atoms are liberated and will move under the action of a magnetic field to form electrical polarities (Ref. 2).

Experimental Proof:

The above structure of the electron is substantiated through some recent experiments on electromagnetic induction. These experiments have brought to light a new phenomenon in which electromotive force is generated in an electrical conductor even if there is no relative motion between the conductor and the magnetic field which is unlike the principle behind the operation of modern electrical generators for which relative motion between the conductor and the magnetic field is a must. Further, the electrical power generation in the newly discovered phenomenon does not fully reflect in a proportionate increase of the input power, thereby giving an efficiency of more than unity, and revealing a new vital fact that absolute vacuum in the interatomic space of matter can generate electrical charge and power when it is set in a dynamic state. An experiment somewhat similar to above was done by Michael Faraday in the year 1830. He discovered the above phenomenon as regards the production of electromotive force even when the relative motion between the magnetic field and the conductor was zero. He, however, does not appear to have made measurements on the incremental power ratio from such a device. The writer first learned of this effect from Bruce DePalma's letters (Ref. 5) to him (1978-79). DePalma made an extensive study of this effect and named it as N-effect. The experimental machines he built, he termed as N-generators.

A series of tests on this unique phenomenon of space power generation have been carried out as outlined briefly in References 2, 3, and 4. The space power generator (SPG) shown in **Figure 3**has produced efficiency of electrical power generation to more than 250%, and precise test results on other models show that higher efficiencies for output currents in kiloamperes are possible.

Conclusion:

Building of space power generators of about 100 kW size should be possible to be achieved with conventional technological methods in the near future.

In addition to the discovery of a novel technology for power generation, the following crucial changes in the scientific and philosophical outlook that would be brought about with the new phenomenon of space power generation are:

1) The fundamental state of universal energy is eternally latent in the dynamic space of the universe.

2) The cosmic mater is generated from the energy of space in repeated cycles of creation and annihilation.

3) Space is not an empty extension but rather the most fundamental entity which alone gives reality to the cosmic world.

The present industrial culture demands a continually increasing growth of electrical power. Since the limited resources of thermal, hydroelectrical and nuclear power cannot last for centuries, the need that has now become vital is to discover a power source which is independent of all material resources, so that a regulated generation of power from the present known technologies is supplemented to a good extent from this eternal source.

A technological breakthrough, which will enable generation of energy directly from space, is in the offing. Nature has, however, already achieved this conversion from space energy to matter in the generation of the cosmic matter of the universe (Ref. 3).

References:

1) Paramahansa Tewari: *Beyond Matter*; 1984, Print Well Publications, Aligarh, India.

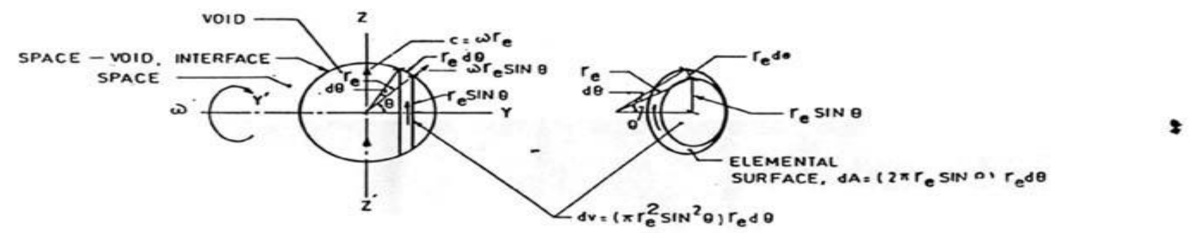
2) P. Tewari: *Magnets In Your Future* 1(8), August 1986; P.O. Box 580, Temecula, CA 92390.

3) P. Tewari: *Magnets In Your Future* 2(12), December 1987.

4) P. Tewari:"Violation of Law of Conservation of Charge in Space Power Generation Phenomenon"; The Journal of Borderland Research 55(5), September-October 1989.

5) Bruce DePalma, Santa Barbara, California USA.

Figure 1: Void Center of Electron ~



ω : ANGULAR VELOCITY OF INTERFACE ALONG Y-Y'.

VOID: FIELDLESS SPHERICAL HOLE IN SPACE.

SPACE: NON-VISCOUS, MOBILE, CONTINUOUS, INCOMPRESSIBLE.

VOID-RADIUS $r_e \simeq 10^{-8}$ CM

CHARGE ON ELEMENTAL RING SURFACE, dq = RING AREA X SPEED OF CIRCULATING SPACE ON RING SURFACE

$$dq = dA\,(\omega r_e \sin\theta)$$

ELECTRONIC CHARGE, $q_e = \int_0^{\pi} (2\pi r_e \sin\theta\, r_e\, d\theta)\,(\omega r_e \sin\theta)$

$$q_e = (\pi/4)\,(4\pi r_e^2 c)$$

DIMENSIONS OF q_e = LENGTH^3 / TIME

REST-MASS OF ELEMENTAL DISC OF VOID,

dm = dv X SPEED OF CIRCULATING SPACE AT THE INTERFACE OF THE ELEMENT.

$$dm = (\pi r_e^2 \sin^2\theta\, r_e\, d\theta)\, \omega r_e \sin\theta$$

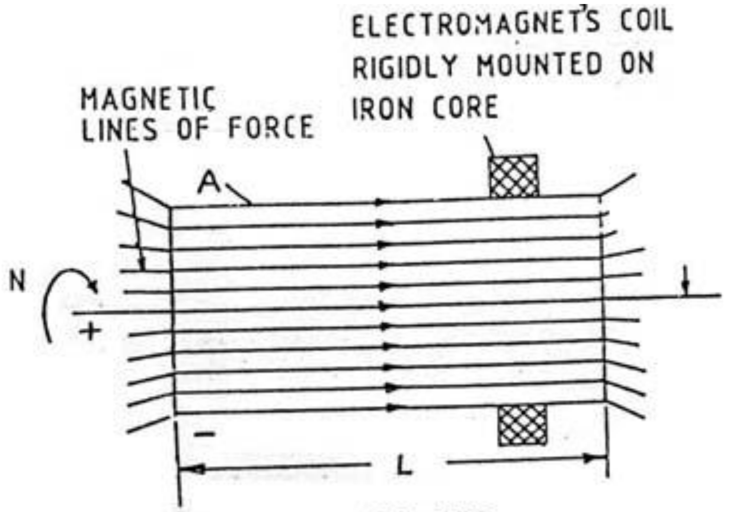
ELECTRONIC REST-MASS, $m_e = \int_0^{\pi} \pi c\, r_e^3 \sin^3\theta\, d\theta = (4\pi/3) r_e^3 c$

DIMENSIONS OF m_e = LENGTH^4 / TIME

VOID CENTRE OF ELECTRON

FIGURE- 1A

Figure 2: Rotating Electromagnet ~

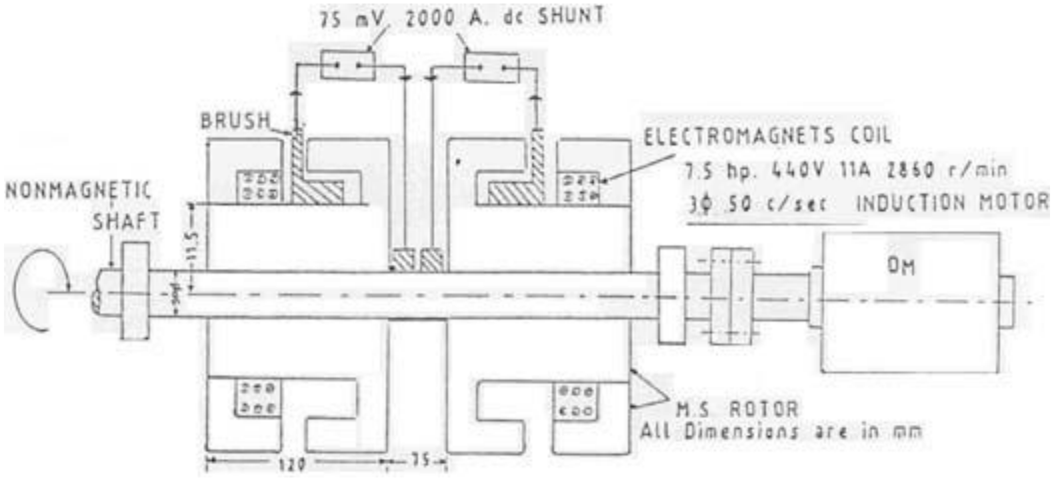


N = REVOLUTIONS PER SEC.

r = RADIUS OF IRON CYLINDER

L = LENGTH OF IRON CORE

Figure 3: Space Power Generator ~



Interaction of Electron & Magnetic Field in Space Power Generation Phenomenon

by

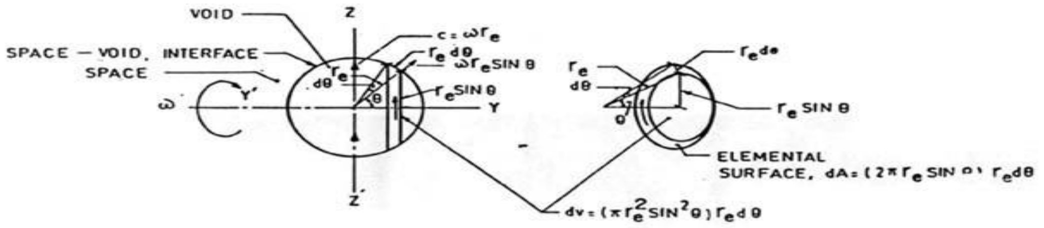
P. Tewari

Introduction:

The newly discovered phenomenon of Space Power Generation as discussed in "Generation of Electrical Power from Absolute Vacuum by High Speed Rotation of Conducting Magnetic Cylinder" (Ref. 1) has the following distinctive features that pinpoint the fact that absolute vacuum in dynamic state is the fundamental state of positive energy.

The electrical output power from the Space Power Generator (SPG) shown in Figure 1b and Figure 1c does not reflect in the proportionate increase of the electrical input to the drive motor of for the SPG, while the excitation power to the electromagnet remains substantially constant when the machine is run from no-load to the loaded condition.

Figure 1a: Space Vortex Theory ~



ω : ANGULAR VELOCITY OF INTERFACE ALONG Y-Y'.

VOID: FIELDLESS SPHERICAL HOLE IN SPACE.

SPACE: NON-VISCOUS, MOBILE, CONTINUOUS, INCOMPRESSIBLE.

VOID-RADIUS $r_e \simeq 10^{-8}$ CM

VOID CENTRE OF ELECTRON

FIGURE- 1A

CHARGE ON ELEMENTAL RING SURFACE, dq = RING AREA X SPEED OF CIRCULATING SPACE ON RING SURFACE

$$dq = dA\,(\omega r_e \sin\theta)$$

ELECTRONIC CHARGE, $q_e = \int_0^{\pi} (2\pi r_e \sin\theta\, r_e\, d\theta)\,(\omega r_e \sin\theta)$

$$q_e = (\pi/4)\,(4\pi r_e^2 c)$$

DIMENSIONS OF q_e = LENGTH^3 / TIME

REST-MASS OF ELEMENTAL DISC OF VOID,

dm = dv X SPEED OF CIRCULATING SPACE AT THE INTERFACE OF THE ELEMENT.

$$dm = (\pi r_e^2 \sin^2\theta\, r_e\, d\theta)\,\omega r_e \sin\theta$$

ELECTRONIC REST-MASS, $m_e = \int_0^{\pi} \pi c\, r_e^3 \sin^3\theta\, d\theta = (4\pi/3)\, r_e^3 c$

DIMENSIONS OF m_e = LENGTH^4 / TIME

Figure 1b: Space Power Generator ~

(1) Space Power Generator (mild steel rotors, 8.125" O.D., 3.5" long each, 5.5" Rotor I.D.); (2) Iron core of Faraday Motor; (3) Disc Rotor (Faraday Motor); (4) Electromagnet (Faraday Motor); (6) Brush gear of SPG; (7) Bronze shaft, 42 mm; (8) Bearing; (9) Slip rings; (10) Drive motor; (11) Drive belts; (12) Mercury pot for current collection system.

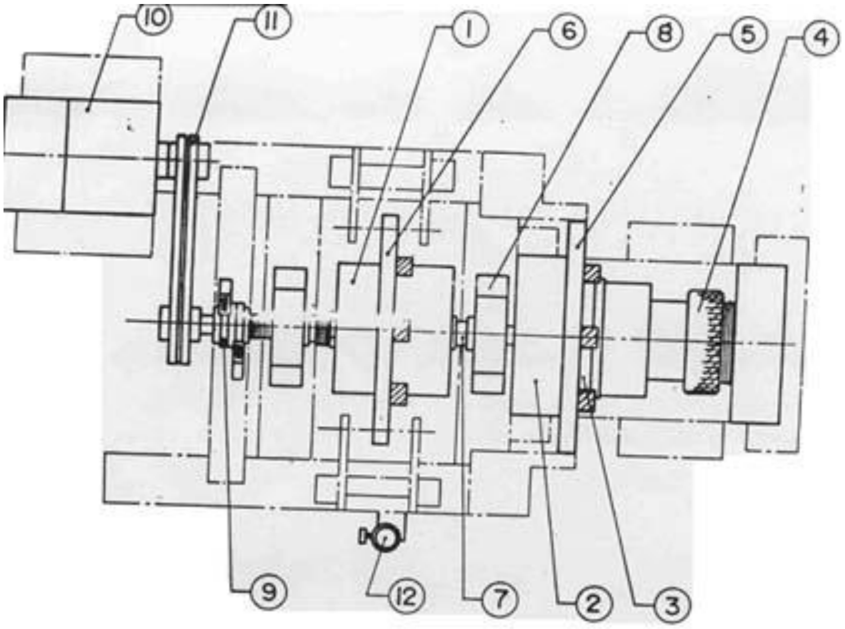
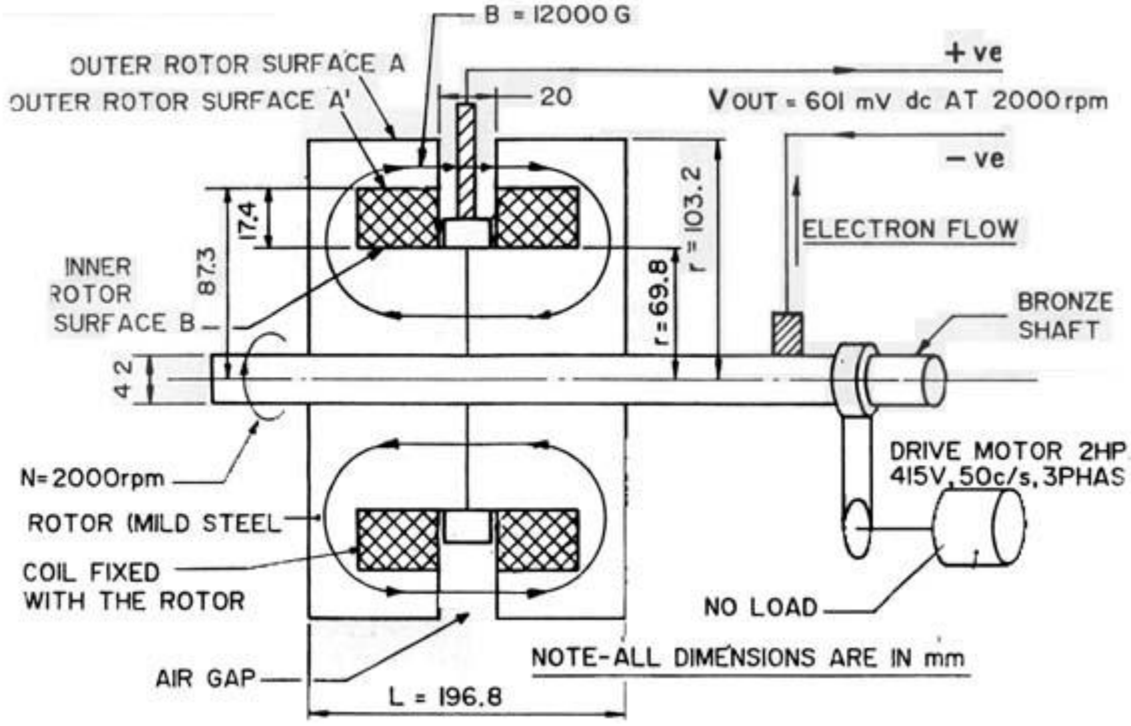


Figure 1c: Space Power Generator ~
Drive motor input: Wm = 950 W; Electromagnet input: Ws = 1400 W; No load voltage: 649 mV @ 2000 rpm; Loaded (partial loading w/ limited number of brushes) drive motor input: Wm + 197 W; Electromagnet input: constant @ Ws; DC current from SPG: 532 A; DC voltage from SPG: 601 mV; I^2R input of SPG: 345 W; Drop in output dc voltage on load: 48 mV; Internal resistance of SPG: 91 microohm; Incremental power ratio: 345/197 = 1.75;



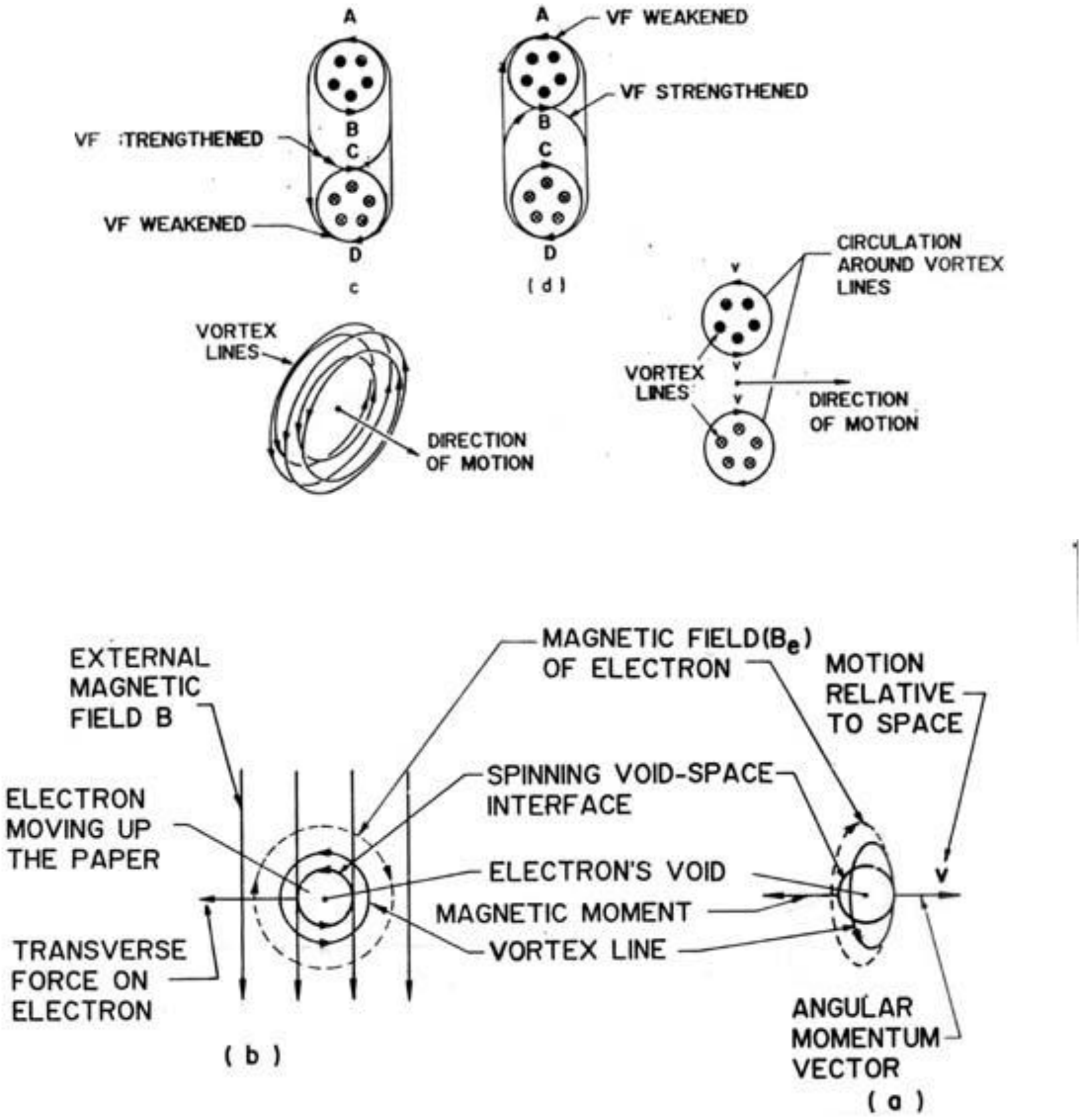
Interaction of electrons that constitute the electrical output current with the magnetic field in the rotating iron rotor of the SPG is such that the effect described above takes place.

The mechanism of generation of continuous electrical power in the inter-atomic space (absolute vacuum) of the iron rotor was analyzed in the paper referred to above with the use of the fundamental equations of Space Vortex Theory which postulate non-viscous nature of space (**Figure 1a**). Further tests on a SPG have revealed that it is the rotation of space within the rotor along with the source of magnetic field in it which shows a "reduced anti-torque" or "dragless" feature unlike the conventional generators. The paper discusses the fundamental physics of interaction of electrons with the magnetic field with the void vortex structure (Ref. 2) of electron as given in SVT (**Figure 1a**), and some crucial experimental results that describe the unique behavior of the machines in space power generation phenomenon.

Generation of Magnetic Field by Electron's Motion Relative to Space:

In **Figure 2**, a vortex ring is shown to have a preferred direction of rotation (Ref. 3) due to circulation around the vortex lines as shown in **Figure 2b**. If the circulation around the top of the ring (**Figure 2c**) is extended to the bottom of the ring, there will be decrease of VF at D, and increase at C. Similarly, if the circulation from the bottom of the ring (**Figure 2d**) is extended to the top of the ring, VF will decrease at A, and increase at B. The vortex ring therefore moves along the direction shown with increased VF at B and C with its clockwise spin when viewed along the direction of its motion. On similar reasoning it is concluded that the electron vortex (**Figure 3a**) will have a specific direction of motion along the positive direction of angular momentum vector.

Figure 2:



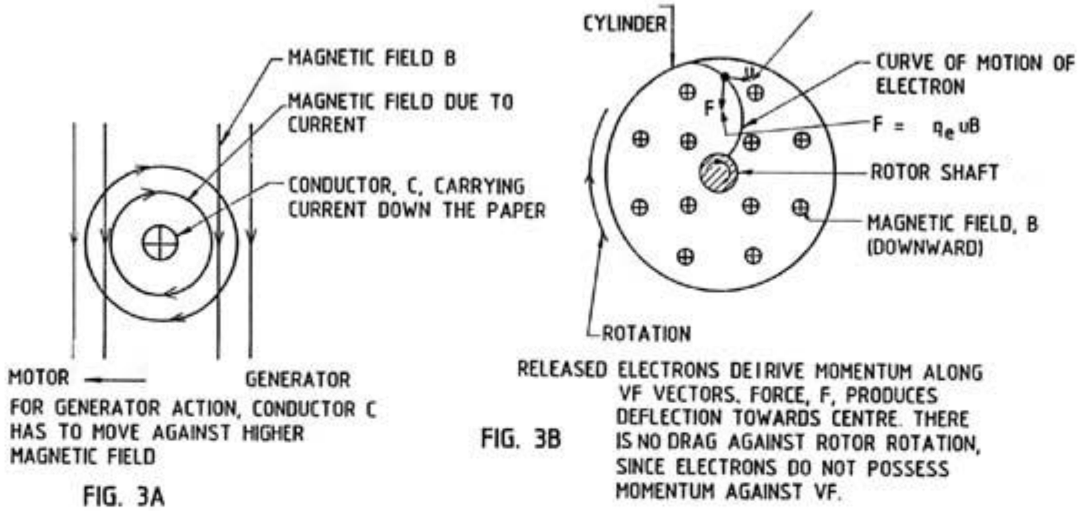
The magnetic effect is discussed (Ref. 2) and shown to be a reaction from space against the change in the magnitude of VF in the vortex of the electron when it is set in motion relative to space. The clockwise spin of VF in the direction of electron produces anti-clockwise concentric circles of magnetic field in an electron moving relative to space as shown in **Figure 3a**.

Magnetic Coupling Between the Two Volumes of Space Within & Outside the Rotor:

In **Figure 4**, the interatomic space within the rotor of the SPG is shown under rotation. Since the electromagnets are mounted rigidly with the rotor, the magnet field lines (**Figure 4b**) shown confined within the rotor, also rotate with the rotor's space, there being no relative motion between B and the rotor's space. The rotation of the rotor produces an irrotational vortex and VF within the rotor. The VF of the irrotational vortex interacts with the atomic vortexes and releases conduction electrons from the iron atoms (Ref. 1). A free electron is imparted velocity v along a VF vector (**Figure 4a**) and thus moving relative to the rotor's space produce magnetic field B_e as shown in **Figure 3a**. The interaction of B and B_e (**Figure 3b**) deflects the released electrons towards the center (**Figure 4a**) under a radial force (B q_e v) directing a dc voltage between the center and the periphery of the rotor.

The load current drawn from the rotor sets up a magnetic field within the rotor body due to its electron (**Figure 3b**) that interacts with B. The force produced on each electron in the current results in a reaction on B and the source of B, i.e., the electromagnets that are rotating with the rotor's space relative to which B is stationary. The reaction from the electrons of the current is thus taken by the rotating space of the rotor, and kept confined within it without transmission to the external static space.

Figure 3:


MAGNETIC FIELD B
MAGNETIC FIELD DUE TO CURRENT
CONDUCTOR, C, CARRYING CURRENT DOWN THE PAPER
MOTOR
GENERATOR
CYLINDER
CURVE OF MOTION OF ELECTRON
F
$F = q_e uB$
ROTOR SHAFT
MAGNETIC FIELD, B (DOWNWARD)
ROTATION

FOR GENERATOR ACTION, CONDUCTOR C HAS TO MOVE AGAINST HIGHER MAGNETIC FIELD

FIG. 3A

FIG. 3B

RELEASED ELECTRONS DEIRIVE MOMENTUM ALONG VF VECTORS. FORCE, F, PRODUCES DEFLECTION TOWARDS CENTRE. THERE IS NO DRAG AGAINST ROTOR ROTATION, SINCE ELECTRONS DO NOT POSSESS MOMENTUM AGAINST VF.

Figure 4:

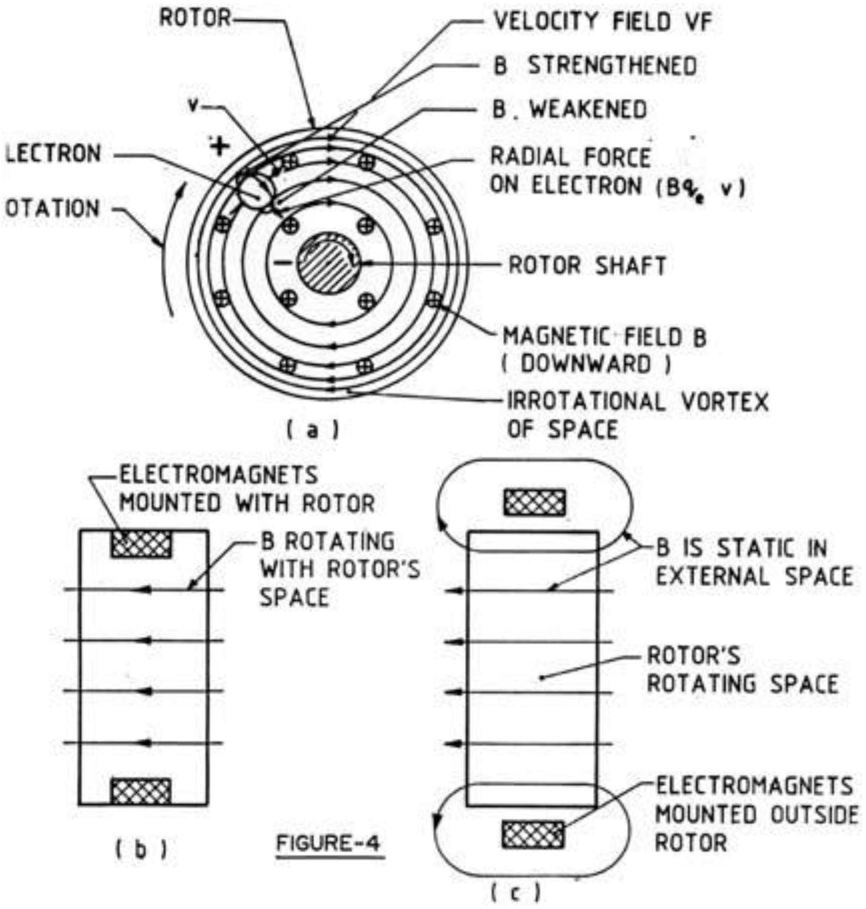


FIGURE-4

In **Figure 4c**, the electromagnets are separately mounted due to which B has relative motion with respect to the rotor's space. The external space outside the rotor is now coupled through the magnetic field B with the rotor's rotating space. The force experienced by the electrons of the current reacts on B, and on the external space in which the source of B is located. There is a force now through B on the electrons in the rotor's rotating space in a direction opposite to the rotation and thereby creating an "anti-torque" or "drag" in direct proportion to the output power.

The "dragless" feature of the SPG is thus seen to be due to the electromagnet's rotation with the rotor.

Tests on SPG:

The SPG shown in **Figure 1b** and **Figure 1c** was tested for incremental power ratio. Tests were taken at low speed of 2000 rpm since the brushes caused vibration at higher speeds giving improper contacts. The voltage buildup was however checked at the higher speed of 4325 rpm, when 1440 mV was observed between the inner rotor surface and the shaft. The dc current input to the electromagnets mounted in the rotor remained constant from the no-load to the loaded condition of the SPG. The rise in the ac input power to the drive motor, from the no-load input and corresponding to the various dc electrical outputs was recorded.

On the same shaft as the SPG, a Faraday disc motor (FM) was mounted with stationary electromagnets (**Figure 1b**). As the output dc current from the SPG passed through the disc of the FM, due to the torque developed the rise in the ac input power to the drive motor was seen to reduce proportionately. The incremental power ratio was higher (about 7.26) with the FM mounted with the SPG, than the results obtained with the SPG alone (about 1.75 to 2.5).

For all the above tests, an airgap in the outer rotor flux path of the SPG was maintained. An interesting phenomenon was noticed in which the dc voltage between the outer rotor surface and the shaft reduced to zero when the airgap was closed and an electrical continuity existed between the outer two halves of the rotor surfaces. The following is the likely explanation:

Consider the voltage buildup at the two halves of the outer rotor surface A in **Figure 1c**. The electrons that become free due to rotation of the rotor are pushed radially out due to the interaction with the magnetic field from the surfaces A’ towards the surfaces A, thus making A negative relative to A’ and also B (The electrons are pushed radially down from B towards the shaft). Due to the airgap in the outer rotor, the electrons accumulated at surfaces A do not find return paths to A’, and therefore voltages are maintained there. If the two halves of the outer rotors are brought together by eliminating the airgap, the electrons at either o the surfaces A will find return paths to A’ through the other half f the outer rotor. The following pattern of flow of electrons will be established:

1. Conduction electrons from surface A from either half of the rotor will flow through the other half to surfaces A’.

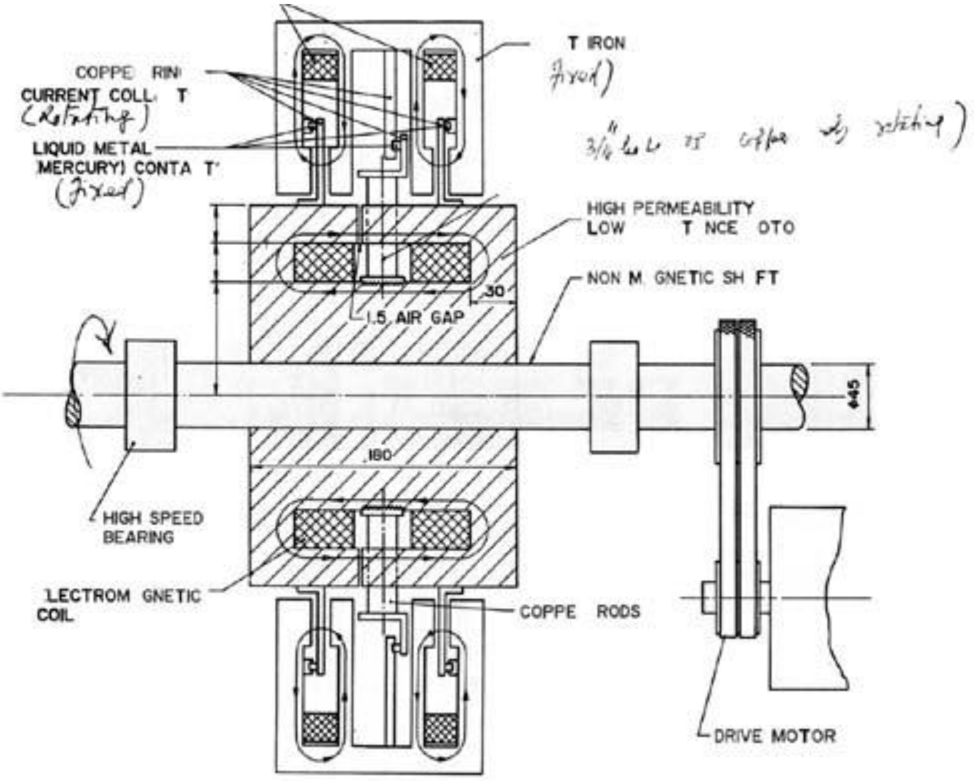
2. Free electrons from surfaces A’ will travel towards surfaces A due to magnetic interaction.

Since the above two modes of electron flow are opposite in direction, the voltage buildup at the surfaces A cannot take place. It can similarly be shown that the electrons pushed towards the shaft from the surface B, will find return paths through the outer rotor surfaces A, thereby preventing any voltage buildup at B. The voltage between A and the shaft will be the difference of the voltages between B and shaft, and A and B. In the absence of voltage buildup at A and B, as discussed above, the voltage between A and the shaft will reduce to zero as experimentally observed.

Space Power Perpetual Machine:

It should be possible to feed the electrical power generated in the inner core of the SPG through liquid metal contact brushes and rotating copper rings mounted on either half of the outer rotor of the SPG (**Figure 5**) and into the outer rotor surfaces and develop torque in a Space Power Perpetual Machine (SPPM). The fixed electromagnets provide magnetic field for motor action that produces torque in the direction of rotation of the SPPM. The reduced airgap will decrease the power requirement to the electromagnets appreciably. Also, the penetration of the non-magnetic copper rods into the outer iron flux return paths and electrically insulated from it, should reduce drag on N-generators without the modification suggested above. The tests on SPPM are yet to be taken.

Figure 5:



SPACE POWER PERPETUAL MACHINE

Conclusion:

The explanation to the phenomenon of space power generation in which there are positive experimental proofs of energy being produced from the absolute vacuum (space) cannot be given by the current laws of physics because it does not recognize that rotation of vacuum is a real process that can generate energy.

The interaction of electron and magnetic field discussed above as per the principles of SVT though exceedin the present boundary of physics yet provides explanations to the experimental findings.

References:

1) Paramahansa Tewari: "Generation of Electrical Power from Absolute Vacuum by High Speed Rotation of Conducting Magnetic Cylinder"; *Magnets in Your Future* 1(8), August 1986.

2) Paramahansa Tewari: *Beyond Matter*; 1984, Printwell Publications, Aligarh, India.

3) The Feynman Lectures on Physics, vol 2: 40; Addison-Wesley Publishing Co, Inc.

Acknowledgements:

The exchange of technical Letters with Mr Bruce DePalma, DePalma Energy Corp., Santa Barbara CA, has very much helped in the development of the SPPM from the basic concepts of the N-generator.

About the Author:

Paramahansa Tewari was born on January 6, 1937. He received B. Sci. Electrical Engineering degree from Banaras Engineering College, Banaras Hindu University, India, in 1958.

After working initially in Bhilai Steel Project on electrical installations, he joined Department of Atomic Energy and worked at Plutonium Plant on electrical works. For one year he was deputed to Douglas Point Nuclear generating Station (1964-65) for training in field engineering and installation of electrical equipment in Nuclear Power Projects. He worked at Erection Superintendent (Electrical) at Rajastan Atomic Power Project, Deputy Chief Engineer at Narora Atomic Power Project, Chief of Transmission in National Thermal power Corp., India, and presently is Head of Quality Assurance, 500 Mwe Group, Nuclear Power Board, Dept. of Atomic Energy.

He has authored works on electron structure with space dynamics.

For the presentation of a working model of Space Power Generator in an International Congress of Gravity Field Energy held at Hanover, Germany in March 1987, and lecture on the new principles of Space Vortex Theory, he was awarded First Prize.

Electromagnetic Induction of Space Substratum

by

P. Tewari

(Reprinted from *Journal of Borderland Research*, Jan-Feb. 1992, p. 16)

Introduction:

A cylindrical electromagnet, rotated on its axis, develops dc voltage between the axis and the periphery though there is no relative motion between the magnetic field in the core parallel to the axis and the iron conductor of the core. Refer to **Figure 1**. Faraday (Ref. 1) had discovered this effect by rotating together a permanent magnet and a copper disc integral with it. Bruce DePalma (Ref. 2) while carrying out the experiments on rotation of magnets independently discovered this phenomenon and named it "N-Effect". Development of the N-generator by DePalma, homopolar generator by Adam Trombley (Ref. 3) and Space Power Generator (SPG) by the writer operating at "overunity" efficiencies and in violation of the "Law of Conservation of Energy" in its existing form is based on this new system of rotating assembly of magnet and disc conductor, in which the magnetic field and the conductor have zero relative motion. It gets evident that there are more basic aspects to Faraday’s law of electromagnetic induction than what has so far been recognized.

Figure 1:

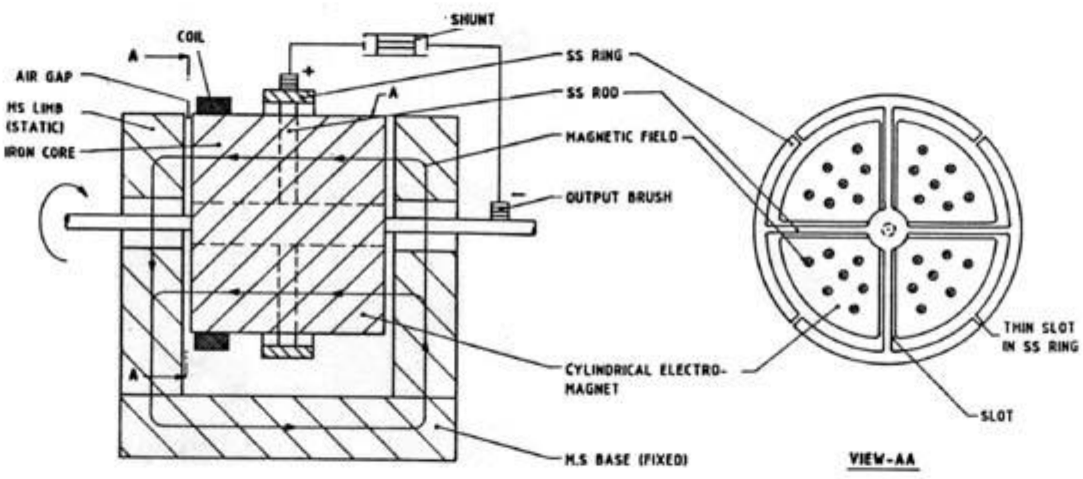


Figure 2:

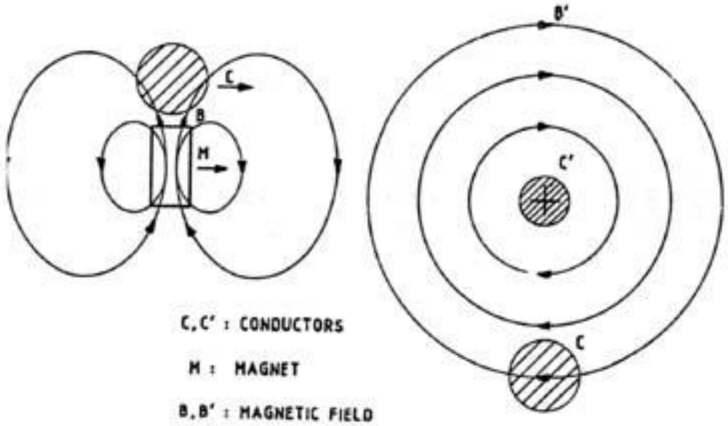


Figure 2

In , a conductor C is placed transverse to a magnetic field B from a magnet M. electromotive force (emf) is generated in C if it is moved as shown in the figure. Also if C is kept at rest and M is moved, emf is generated in C. In another case, if current is changed in a nearby conductor C’, the changing magnetic flux of C’ will induce an emf in C. In the above cases, there is either relative motion between C and B, and B thus cuts the conductor or there is a change in the magnetic field B’ of the nearby circuit conductor C’ and the changing field B’ interacts with C to produce emf. In SPG also the magnetic field is in contact with the rotating iron core conductor and emf is produced without relative motion between the conductor and the magnetic field. The common feature in all the above cases is that for the generation of emf in a conductor, interaction with the conductor of either steady magnetic field or changing magnetic field is essential.

An experiment with rotating electromagnet described below has, however, shown that emf can be induced within a rotating conductor even when it has no direct interaction with steady or changing magnetic field. With this experiment, a conclusive proof is had that the absolute vacuum (space) is the fundamental substratum of reality that can undergo magnetic induction and transmit the emf induced in it to the conductor rotating relative to it.

Experiment:

Refer to **Figure 1**. The magnetic circuit of a rotating electromagnet completes its path through static iron limbs on either side and the base. In the four slots cut in the cylindrical iron core, provision is made for non-magnetic stainless steel (ss) rods that are welded with the non-magnetic ss ring surrounding the core. The magnetic field produce by the dc current in the coil, which is integral with the core and rotates with it, does not pass through either the four slots or the rods mounted within the slots. When the assembly is rotated, the magnetic field remains confined to the core, air gaps on either side of the core, and the base. Measurements show however that the ss ring develops the same dc voltage as the cylindrical core's surface on its periphery (although the ss ring and the rods are neither in contact with the periphery of the core nor have magnetic fields in them). Even when four thin slots are cut in the ss ring making the rods independent, the same voltage is induced in the ring. It is inferred that the zone in which voltage is induced in the rods is within the slots and since the magnetic field in the core surrounding the slots is a steady field due to dc current in the electromagnet's coil, electromagnetic induction as conventionally understood cannot induce emf in the rods. The space surrounding the rods in the slots has to be a real medium that has to somehow generate emf in itself so as to transmit the same to the rods.

"Static" & "Dynamic" Space Substratum:

The effect of generation of emf in the above experiment can be explained by introducing "static" and "dynamic" aspects of space substratum as discussed elsewhere in the writer's works (Ref. 4). The interatomic space within the iron core along with the "space vortices" that constitute the atoms of the iron core, the ss ring and the rods form one system of dynamic space that rotates relative to the static space. Within the iron core, however, the rotating space is super-imposed on the stationary space, and, therefore, the magnetic field there is common to both the rotating as well as the stationary spaces. As the space of the rotating iron due to rotation shifts along with its magnetic field, it leaves behind within the slots static space with magnetic field falling to zero there. This causes induction effect in the static space of the slots. The ss rods moving through the stationary space within the slots pick up the emf induced there and are thus raised to the same potential as the periphery of the core. If the space medium within the slots around the ss rods is considered an "emptiness", in the absence of any magnetic field there, no electromagnetic induction is possible and hence the ss ring cannot develop emf with steady magnetic field in the core contrary to experimental evidence.

Conclusion:

The following conclusions are drawn from the above experiment:

A rotating electromagnet carried with it during rotation the magnetic field in interatomic space of the core produced due to the coil integrally mounted on the core of the electromagnet (as the source of the magnetic field [coil] rotates, the field also rotates with the source).

The steady magnetic field in the iron core in its transverse motion of rotation produces emf in the neighboring space (within the slots) due to electromagnetic induction of space caused when the magnetic field in the core shifts relative to the stationary space substratum in the slots.

The radial flow of load current in the electromagnet's iron core and the magnetic field in the core transverse to this current, interact within the rotating pace system of the core which is independent of the external stationary space system. The resultant force between the current and the magnetic field is thus contained within the rotating space system and does not produce torque opposite to that of the prime mover that rotates the electromagnet.

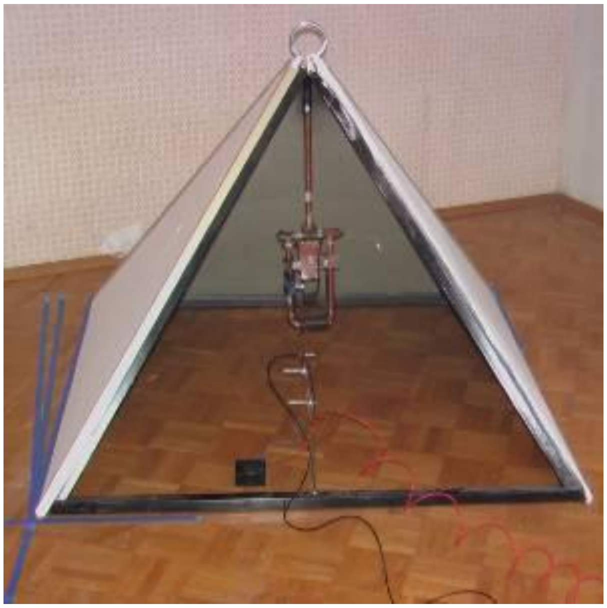
References:

1) Martin, Thomas (ed.): *Faraday's Diary*; 1932, Bell.
2) DePalma, Bruce: "On the Possibility of Extraction of Electrical energy Directly from Space"
3) Trombley, Adam D., Director of Research & Development, Zero Point Technologies,Inc., P.O. Box 1031, Evergreen, CO 80439
4) Tewari, Paramahansa: *Beyond Matter*; 1984, Print Well Publications, Alighar, India.
5) Tewari, P.: "Generation of Electrical Power from Absolute Vacuum by High Speed Rotation of Conducting Magnetic Cylinder"; *Magnets in Your Future* 1(8), August 1986.
6) Tewari, P.: "Violation of Conservation of Charge in Space Power Generation Phenomenon"; *The Journal of Borderland Research*, vol.55 (5), Sept.-Oct. 1989.
7) Tewari, P.: "Detection of Stationary & Dynamic Space Substratum"; *Raum & Zeit*, USA, 2 (1), 1990.

Thomas TRAWOEGER [Trawöger]

Pyramid Electrical Generator

This information surfaced in 2006 at Stefan Hartmann's excellent website, overunity.com :



12 V / 1/4 A DC Output

Link to online video: http://www.panaceauniversity/pyramid.asp

[PDF Format transcript w/ photos]

Trawoeger's website :

http://www.comshop.tv/tpp/

Videos by Trawoeger :

http://www.youtube.com/user/Nanotec99

http://www.youtube.com/watch?v=825A9G37P7s

http://www.youtube.com/watch?v=4UzzdiWof5M

http://www.youtube.com/watch?v=X2HZSNitxVk

http://www.youtube.com/watch?v=jeHLYJLE60c

http://www.youtube.com/watch?v=gIZHaLWLQkI

Tutorial:

Part 13
http://www.youtube.com/watch?v=7-3eqeBWUWw

Part 12
http://www.youtube.com/watch?v=Z4iYBV7KhDE

Part 11
http://www.youtube.com/watch?v=DsOsV5NMREs

Part 10
http://www.youtube.com/watch?v=qeqKl54QkUY

Part 9
http://www.youtube.com/watch?v=08a-H6v57Hw

Part 8
http://www.youtube.com/watch?v=PCox5GhxN-c

Part 7
http://www.youtube.com/watch?v=zzIpK78In3Q

Part 6
http://www.youtube.com/watch?v=Yh7-6jCkkpE

Part 5
http://www.youtube.com/watch?v=PWdjSpuq3gY

Part 4
http://www.youtube.com/watch?v=CaxEkgWPqrs

Part 3
http://www.youtube.com/watch?v=MHQRl7jF0s8

Part 2
http://www.youtube.com/watch?v=gMvXkR3_l3A

Part 1
http://www.youtube.com/watch?v=vNJWiyX1yuQ

Troubleshooting
http://www.youtube.com/watch?v=3e0QvgGj2xs

---

http://www.overunity.com/index.php/topic,695.0.html

Here is a reply I [Stefan Hartmann] got today from the inventor Thomas Trawöger:

Hallo Herr Hartmann

Herzlichen dank für Ihr Interesse an unserer Pyramide.

Ich habe schon in mehreren Foren darum um Entschuldigung gebeten, dass durch mein antiquiertes Multimeter der Eindruck entstand, dass in die Pyramide Strom eingespeist wird. Tatsächlich braucht es natürlich absolut keine Einleitung jeglicher Spannung, um die Pyramide "hochzufahren" Wir verwenden für diese Initialisierung lediglich einen kleinen Magneten, und regen damit die Spule zum "Einschwingen" an.

Selbstverständlich wurde auch mein altes Multimeter bereits von kritischen Fachleuten dahingehend untersucht, dass eben wirklich keine Spannung "eingeschleust" wird.

Im Übrigen habe ich mittlerweile sehr gute Messgeräte als Leihgabe erhalten, und mein neues Video (kommt in wenigen Tagen) zeigt dann deutlich mehr :-)

Fraglich ist derzeit nur, woher diese Energie stammt. Ich bin hier auf mehr oder weniger skurrile Vorschläge angewiesen. Derzeit geht aber meine Forschungsarbeit eher in die Verbesserung der Leistung, als in die Ursachenforschung :-)

Wenn alles gut geht, wird unsere HP gegen ende Jänner endlich fertig, und Sie können anhand unserer Baupläne den Versuch jederzeit, und mit einfachsten Mitteln nachvollziehen.

Bis dahin liebe Grüsse

Thomas Trawöger

-----Ursprüngliche Nachricht-----
Von: Stefan Hartmann [mailto:harti@harti.com]
Gesendet: Freitag, 20. Januar 2006 14:16

Hallo,

Sehr interessant Ihr Video und die Bilder.

Ich hätte es allerdings auch besser gefunden, wenn Sie vielleicht, wenn Sie da irgendwie eine Gleichspannung brauchen, um einen Arbeitspunkt einzustellen, den vielleicht lieber mit einer 9 Volt Batterie und Spannungsteiler-Widerständen gemacht hätten.

Dann dadurch gezeigt hätten, dass die Last (z.B. besser mal eine Lampe nehmen, dass man mehr sieht) nicht aus dem Netzteil gespeist wird...

Brauchen Sie denn da diese 8,4 Volt um einen Arbeitspunkt einzustellen oder wozu haben Sie überhaupt das Netzteil angeschlossen ? Oder ist es wirklich nur ein Voltmeter, dass über einen Shunt einen Spannungsabfall von 8.4 Volt anzeigt ?

Vielleicht können Sie Ihre neuen Erkenntnisse ja auch in meinen Forum unter: http://www.overunity.com/index.php/topic,695.0.html mal weiter diskutieren.

Vielen Dank.

P.S: Warte schon sehnlichst auf die Bauanleitung.

Viel Erfolg !

Kann man Sie auch mal anrufen ?

Danke.

Gruss, Stefan Hartmann.

February 04, 2006:

Have the big powers shut him down ? There is now just the message at his website:
04.02.2006 17.30 Uhr MEZ
Sehr geehrte Damen und Herren
Diese Website ist bis auf weiteres geschlossen.

Bitte beachten Sie, dass alle bis dahin gezeigten Inhalte dem Urheberrecht und internationaler Copyrightgesetze unterliegen, und auch die Weitergabe gezeigter Inhalte bereits strafbar ist.

Wir bedauern diese Unannehmlichkeiten, sehen uns aber aus rechtlichen Gründen außerstande, diese Website weiter in dieser Form aufrecht zu halten.

May 15, 2007

Here in this video at the end starting at 12:56 min is another inventor claiming to have rebuilt this pyramid and also getting power out...

http://www.secret.tv/artikel/Strom_aus_der_Pyramide__Mythos_oder_Wirklichkeit__1308869.html

http://www.secret.tv/player_popup.php?id=1307723&movieid=1308850

[Also: **http://www.web-space.tv/free-energy/Trawöger = Device Part 14**]

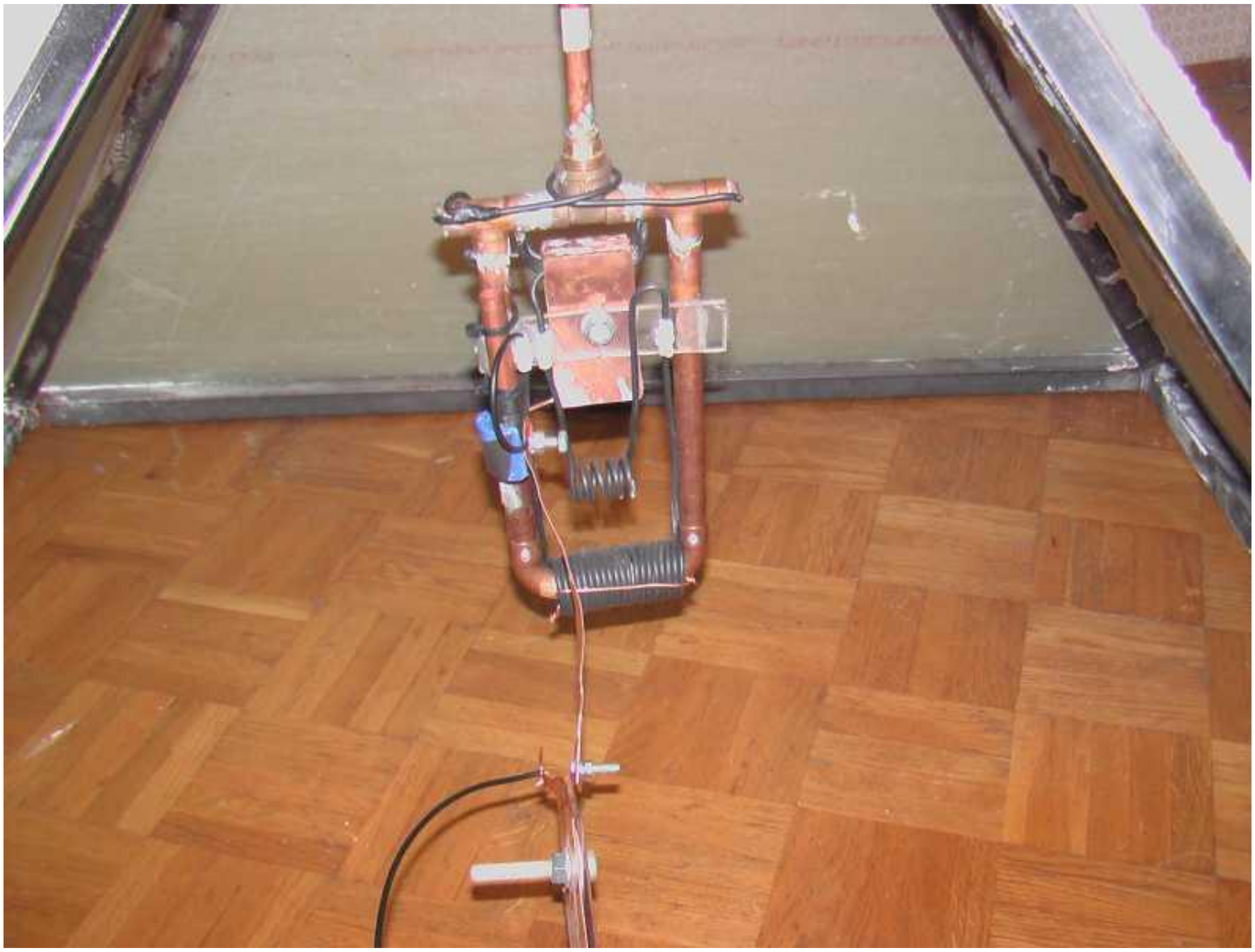
Too bad we don´t know, if this is a fake or not... He seems to be pretty old and although he speaks German, it is hard to understand, what he means, jumps in his speech from one topic to the next without giving real explanations..

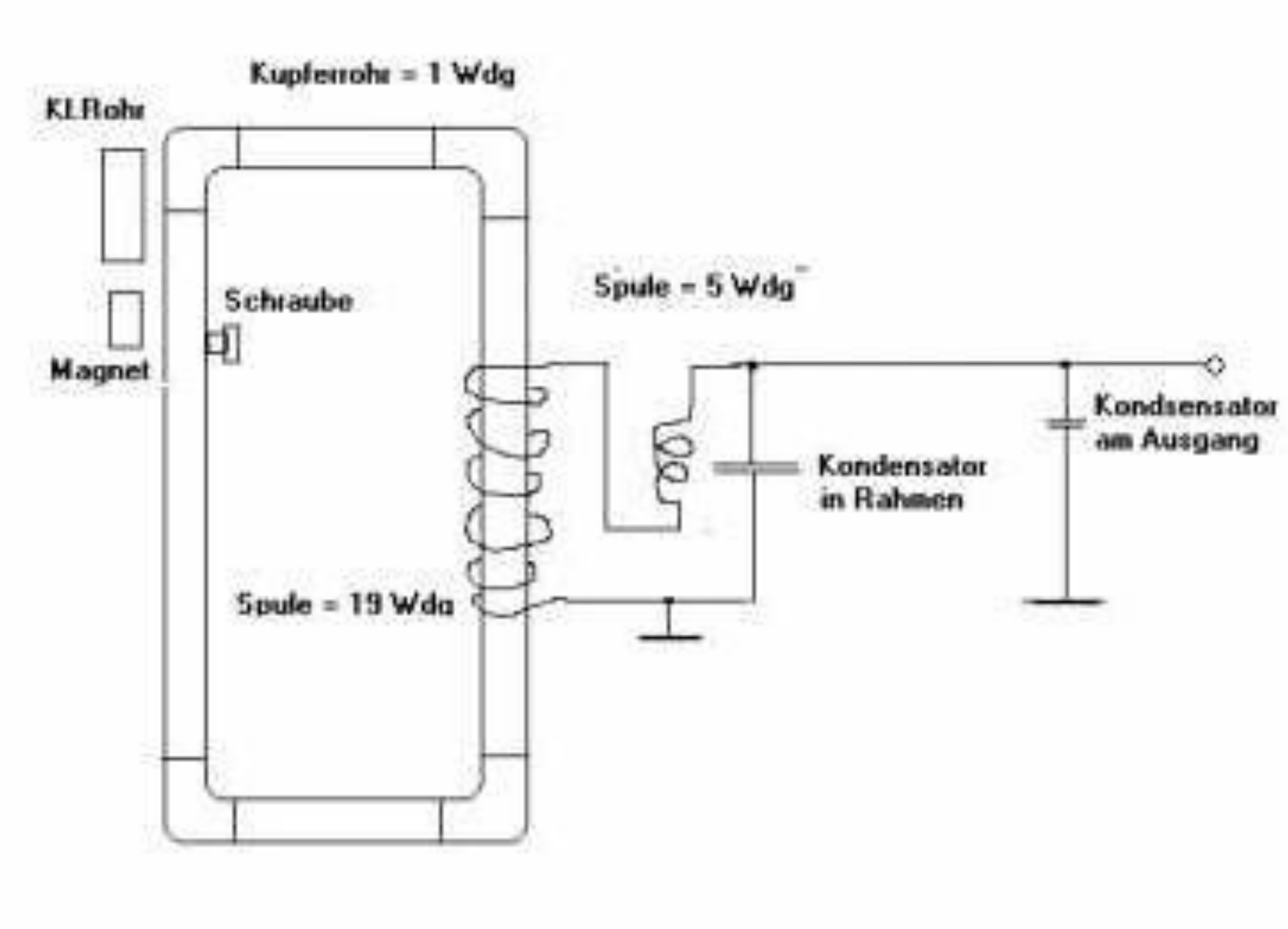
Hmm,does anybody know, who this guy is ?

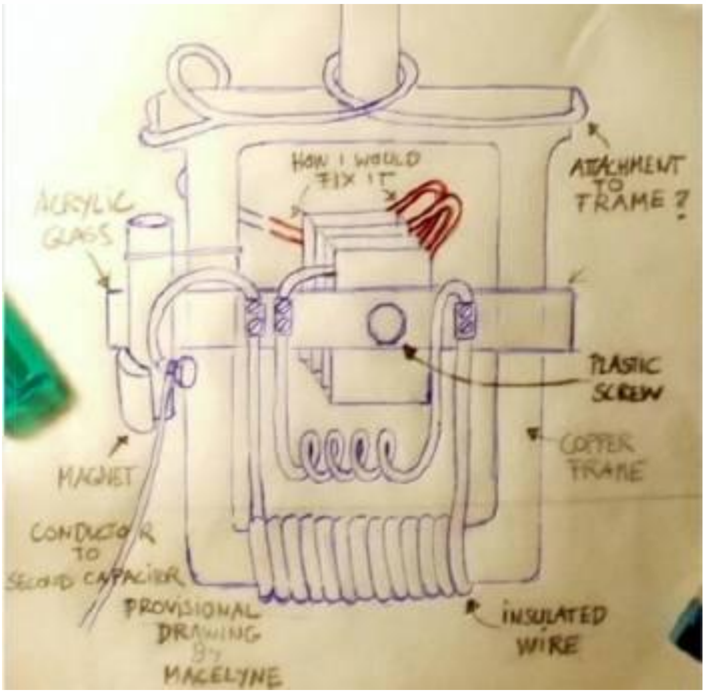
[Flavio Thomas?]

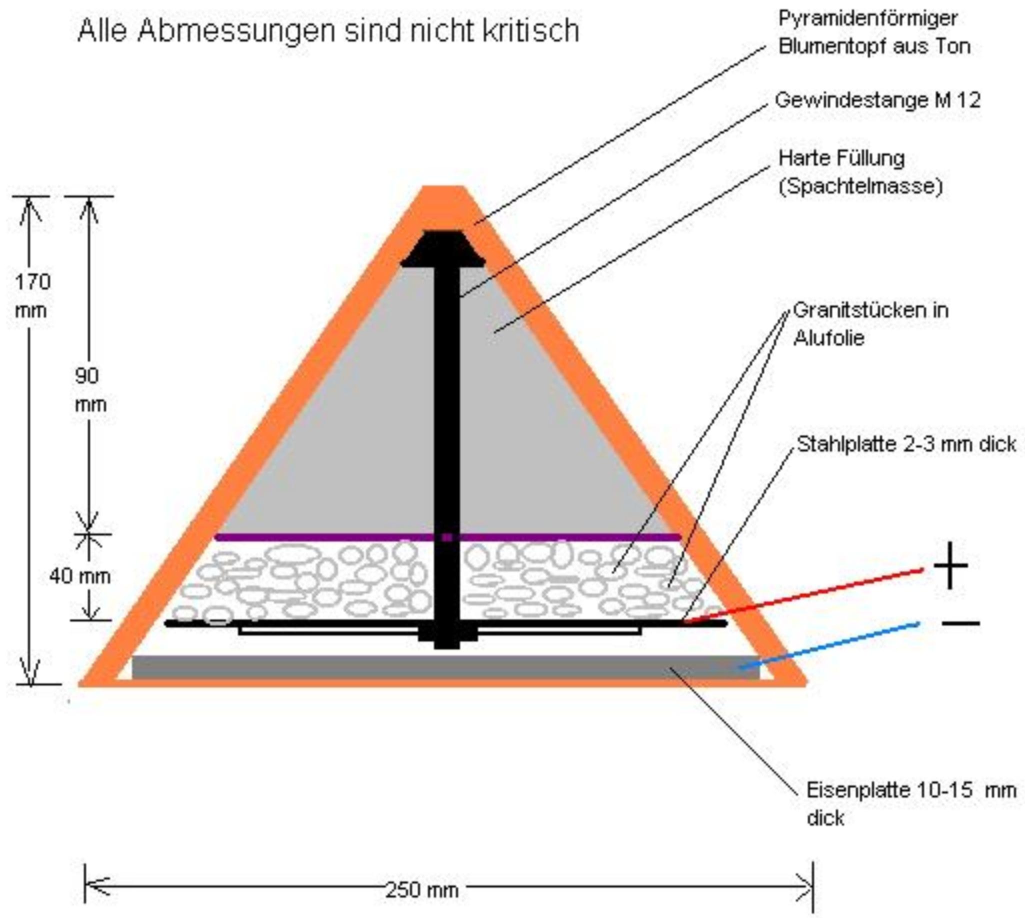
Thanks.

Regards, Stefan.



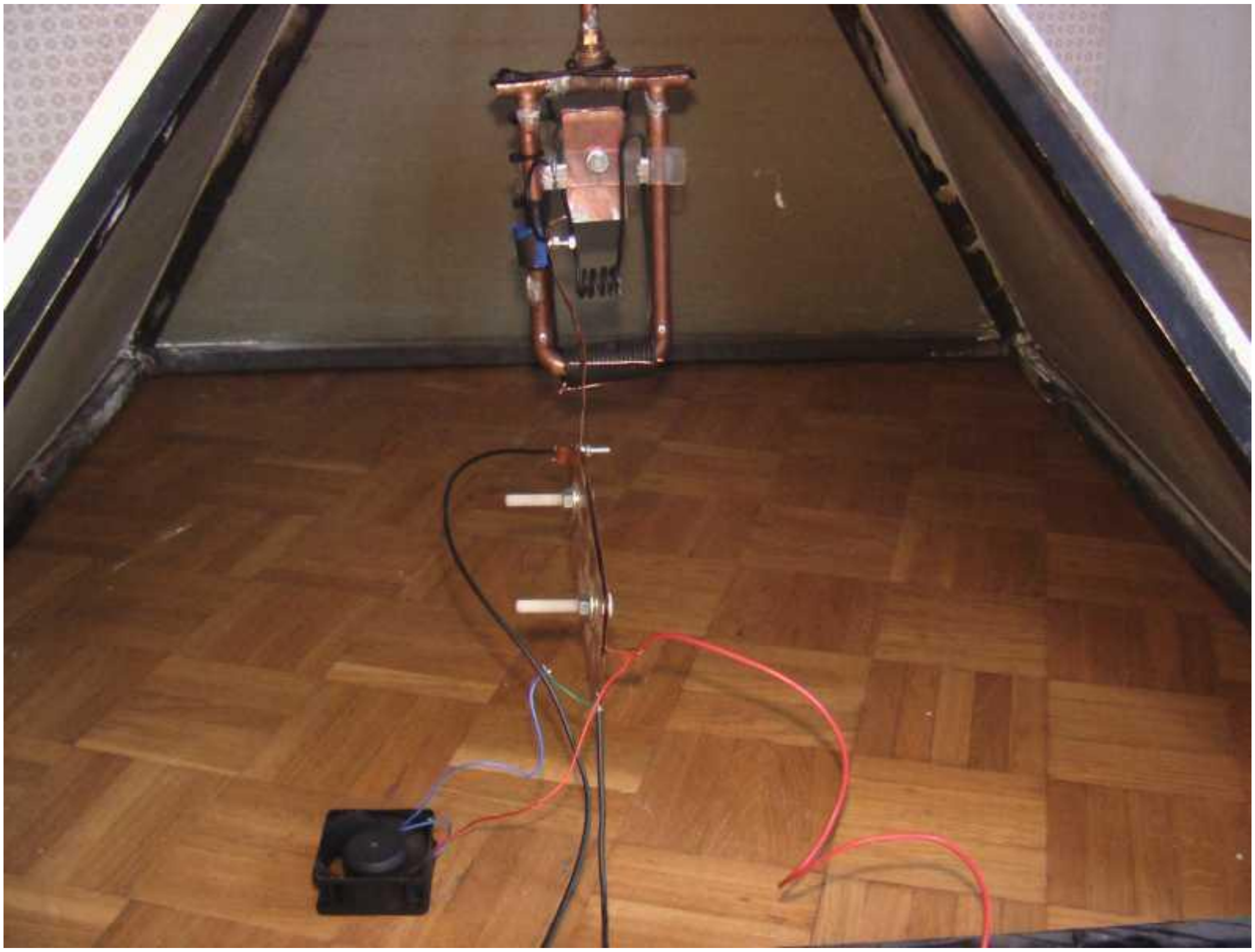

Kupferrohr = 1 Wdg
KLRohr
Schraube
Magnet
Spule = 5 Wdg
Kondensator in Rahmen
Kondsensator am Ausgang
Spule = 19 Wdg


HOW I WOULD FIX IT
ACRYLIC GLASS
ATTACHMENT TO FRAME ?
PLASTIC SCREW
COPPER FRAME
MAGNET
CONDUCTOR TO SECOND CAPACIER
PROVISIONAL DRAWING BY MACELYNE
INSULATED WIRE



Alle Abmessungen sind nicht kritisch

Pyramidenförmiger Blumentopf aus Ton
Gewindestange M 12
Harte Füllung (Spachtelmasse)
Granitstücken in Alufolie
Stahlplatte 2-3 mm dick
+
−
Eisenplatte 10-15 mm dick
170 mm
90 mm
40 mm
250 mm



---

http://www.secret.tv/artikel/Strom_aus_der_Pyramide__Mythos_oder_Wirklichkeit__1308869.html

Strom aus der Pyramide - Mythos oder Wirklichkeit ?

http://www.secret.tv/player_popup.php?id=1307723&movieid=1308850

Daß eine Pyramide besondere Eigenschaften hat, ist bekannt. Rasierklingen schärfen sich von selbst, Getreide, das man in ägyptischen Pyramiden gefunden hat, war nach Jahrtausenden noch keimfähig. Dieser Erfinder hat Versuche unternommen, die Pyramiden-Energie in Elektrizität umzusetzen - mit Erfolg offenbar!

Der Österreicher Thomas Trawöger hatte über Jahre hinweg das erforscht, was Sie in diesem Video sehen können. Über seine Forschungen und Ergebnisse hatte er die Öffentlichkeit über seine Website www.trt-biopower.at informiert. Diese ist im Juni 2006 aus dem Netz verschwunden, so wie Herr Trawöger selbst, was wir am 16. Mai telefonisch erfahren haben.

Lesen Sie selbst, was Herr Trawöger als letzten Eintrag auf seiner Website stehen hatte:

Sehr geehrte Damen und Herren

Leider müssen wir Ihnen mitteilen, dass wir unser Projekt und alle daraus resultierenden Ergebnisse zur weiteren Aufarbeitung an ein international tätiges Unternehmen abgeben.

Die Gründe hierfür sind denkbar einfach.

Zum Einen stehen wir vor dem Problem, die immensen Kosten für eine weiterführende Forschung nicht mehr tragen zu können, zum Anderen wurde uns seitens dieses Unternehmens zugesichert, dass wir für weiterführende Forschung unvorstellbare Ressourcen zur Verfügung gestellt bekommen.

Diese neue Zusammenarbeit funktioniert nun seit Wochen mehr als Klaglos, und bringt für beide Parteien deutliche Vorteile.

Natürlich müssen wir uns in Punkto Medienkontakt und Datenaufbereitung gewissen Restriktionen unterwerfen, welche vertraglich vereinbart sind, und unsererseits auch eingehalten werden.

Ein wesentlicher Punkt dieser vertraglichen Vereinbarung ist auch die Einstellung unserer Website www.trt-biopower.at

Wir kommen dieser Aufforderung natürlich nach, und stellen unsere Site per 15.06.2006 ein.

Wir haben die vertragliche Zusicherung, dass unsere Innovation nicht in einer Schublade verstaubt und arbeiten selbstverständlich bis zur Serienreife unseres Projektes weiter.

Die tatsächliche Vermarktung obliegt aber unserem munmehrigen Auftraggeber.

In einigen Mails bereits informierter wurde ich sogar als Verräter bezeichnet, da wir uns der Industrie gebeugt haben, und nun doch Geld für unsere Arbeit nehmen.

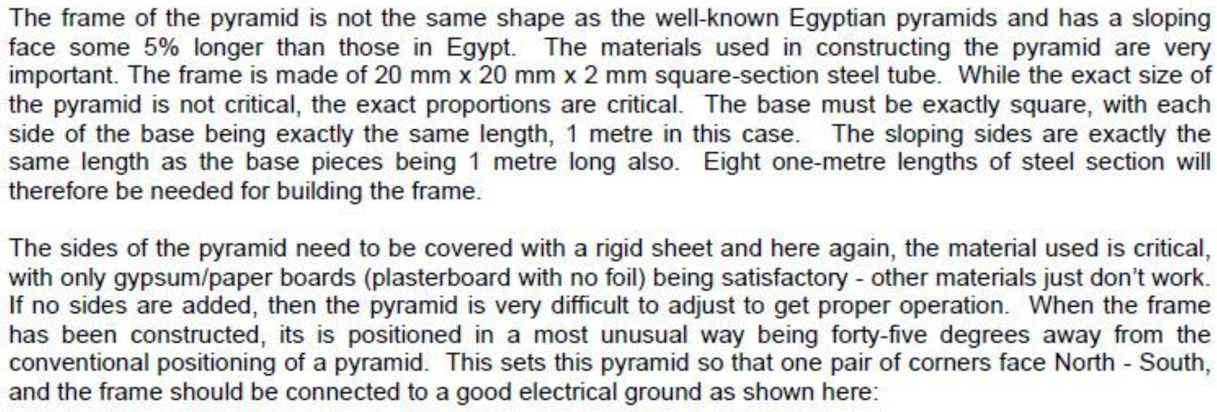
Ich kann nur anführen, dass wir mit unseren Mitteln das Ende der Fahnenstange erreicht haben. Prüfungen, Tests und Rechtsatteste kosten eben Geld, und genau davon war nichts mehr übrig. Nun sind wir aber in der Lage, auf einen uneingeschränkten Pool von Fachleuten zurückgreifen zu können, wir können neue Materialien und Messgeräte ungeahnter Präzision verwenden, und müssen uns nicht mit selbsternannten Technikern, Spinnern und Möchtegern-Spionen abgeben.

Es gibt noch so viel zu entdecken, und daher sehen wir unsere weitere Tätigkeit nicht hier an der Tastatur, sondern da wo echte Arbeit geschieht....

Wenn Sie, lieber secret.TV-Zuschauer, etwas Neues zu Herrn Trawöger erfahren, so sind Sie herzlich dazu eingeladen, uns zu schreiben.

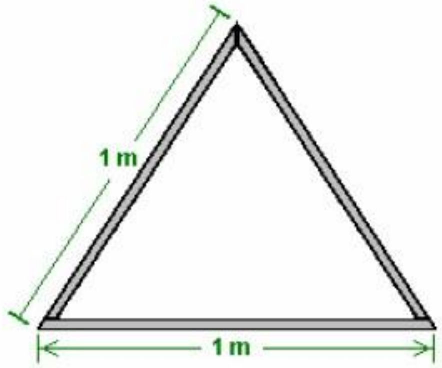
Patrick Kelly's representation :

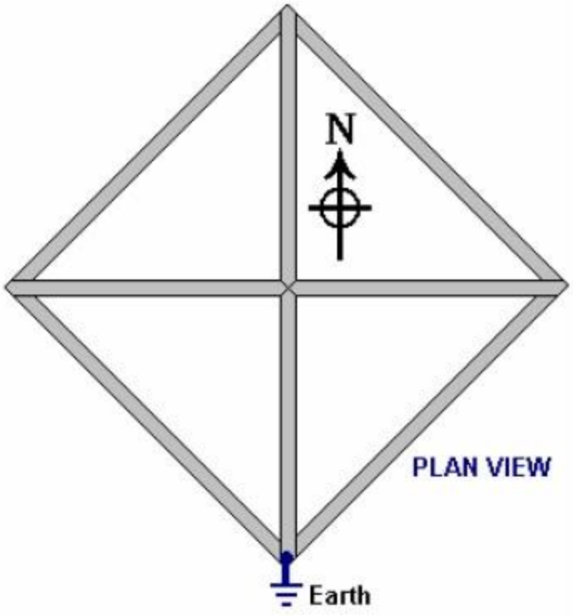
6



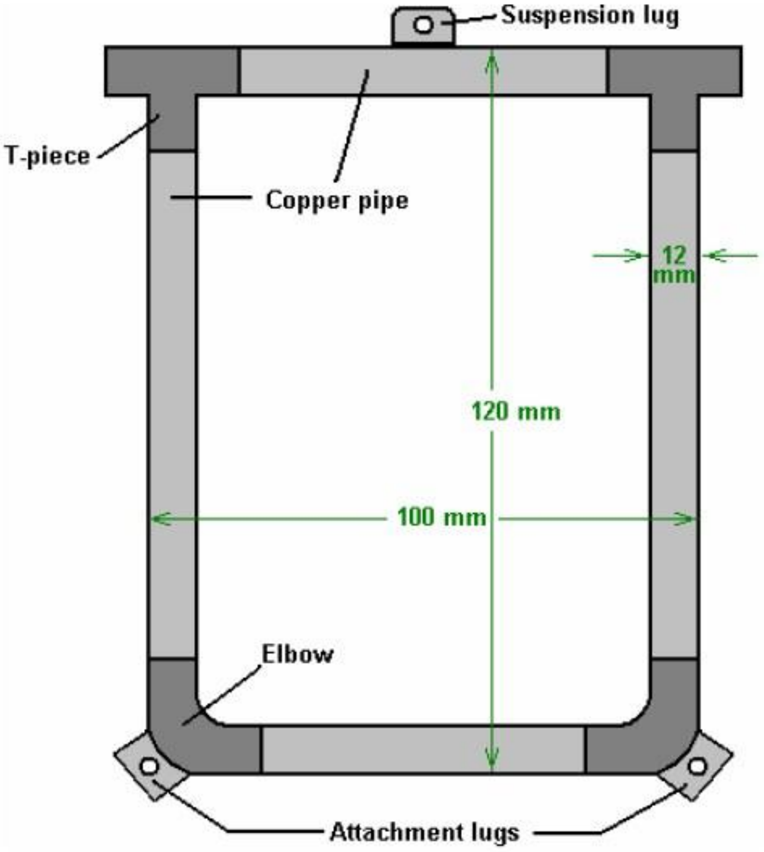
The frame of the pyramid is not the same shape as the well-known Egyptian pyramids and has a sloping face some 5% longer than those in Egypt. The materials used in constructing the pyramid are very important. The frame is made of 20 mm x 20 mm x 2 mm square-section steel tube. While the exact size of the pyramid is not critical, the exact proportions are critical. The base must be exactly square, with each side of the base being exactly the same length, 1 metre in this case. The sloping sides are exactly the same length as the base pieces being 1 metre long also. Eight one-metre lengths of steel section will therefore be needed for building the frame.

The sides of the pyramid need to be covered with a rigid sheet and here again, the material used is critical, with only gypsum/paper boards (plasterboard with no foil) being satisfactory - other materials just don’t work. If no sides are added, then the pyramid is very difficult to adjust to get proper operation. When the frame has been constructed, its is positioned in a most unusual way being forty-five degrees away from the conventional positioning of a pyramid. This sets this pyramid so that one pair of corners face North - South, and the frame should be connected to a good electrical ground as shown here:

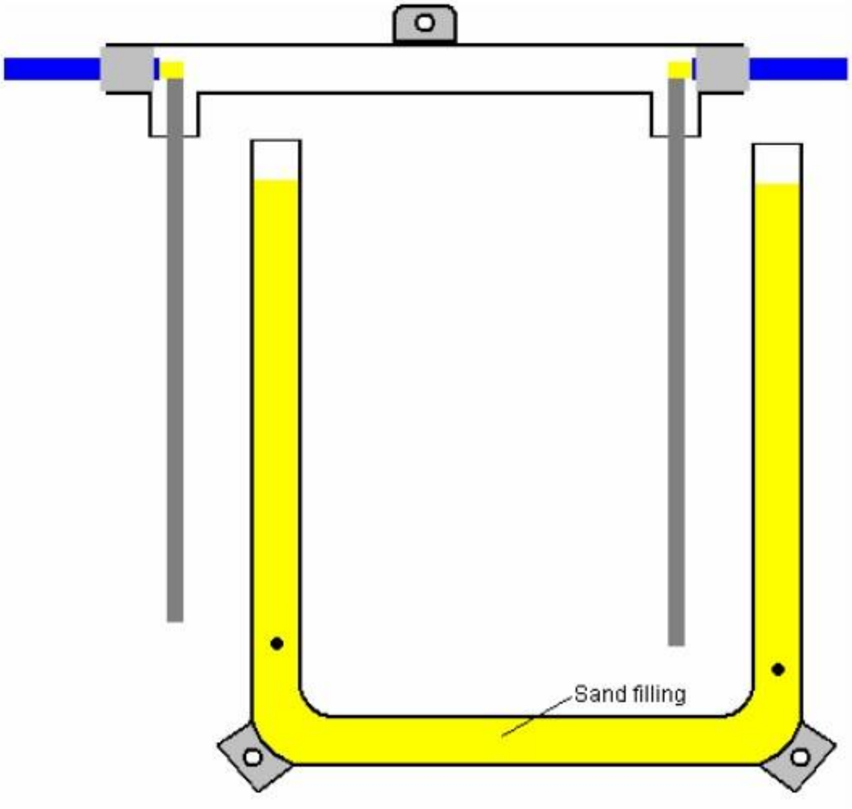




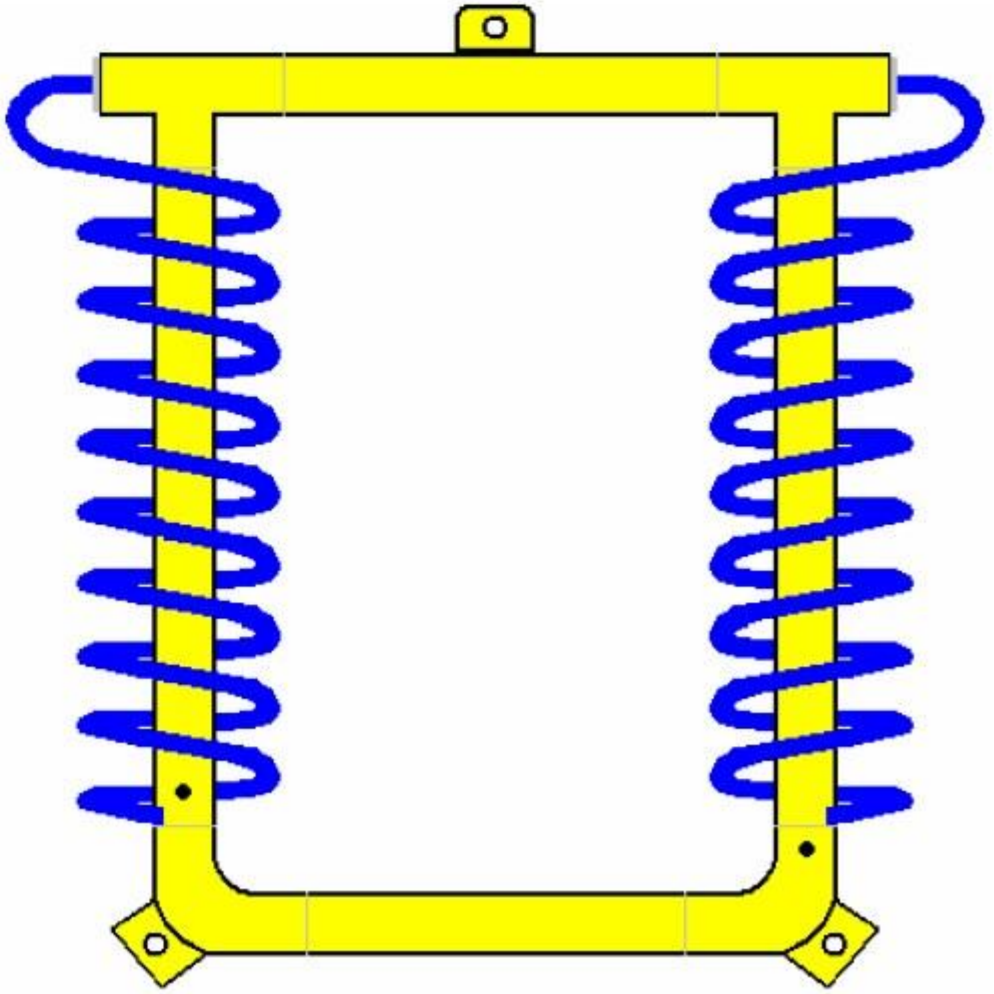
The pick-up is constructed from 12 mm outside diameter copper pipe and fittings and is hard soldered together. It has an overall size of 120 mm x 100 mm hard soldered together as shown here:



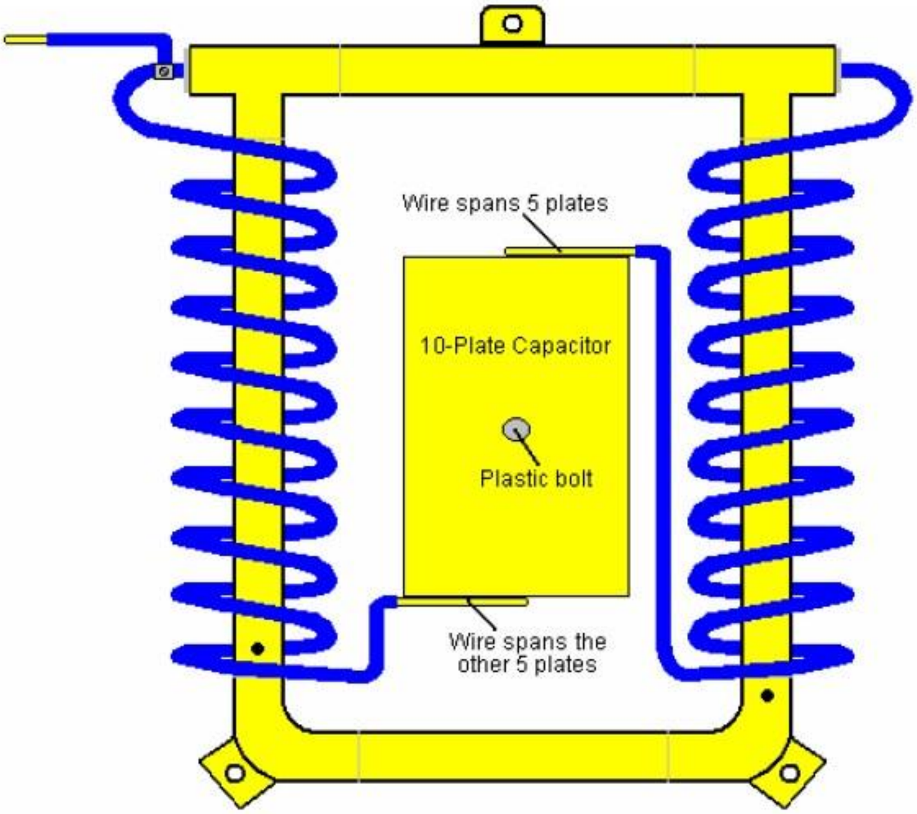
This frame of copper piping is not assembled as shown straight off as there is a requirement for a long graphite rod, 2 to 3 mm in diameter, to be positioned vertically inside each vertical leg of this frame and that can't be done after assembly. So the bottom section is assembled as one piece, and the top section is assembled separately with the graphite rods sticking down out of the T-sections, held in place by their wires and insulating plugs. The graphite rods can be bought from art materials supply shops.



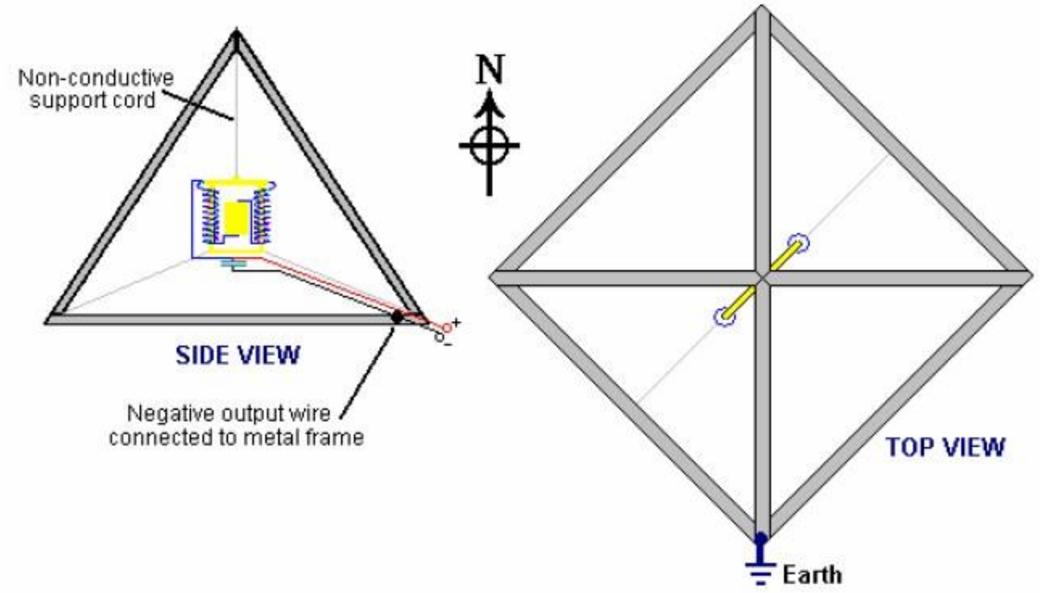
The very fine filter-grade quartz sand filling for the tubes is inserted and the graphite rods carefully positioned so that they do not touch the side walls of the vertical copper tubes, and the two parts joined by hard soldering:



The capacitor is positioned inside the copper pipe frame and held in place by the strength of the 2.5 mm thick copper wire coil around the vertical pipes in the frame:



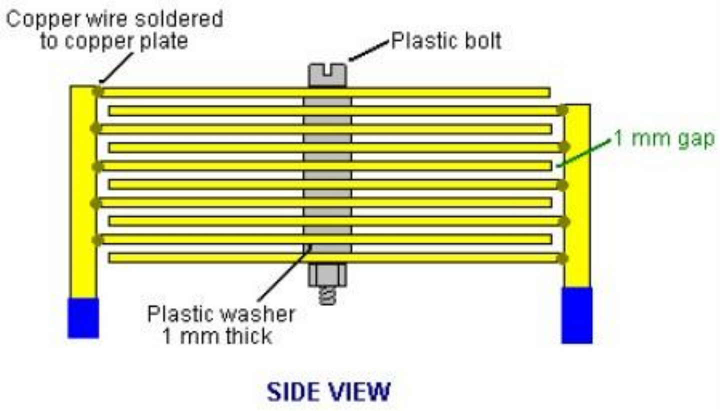
The pick-up sensor is now attached to the pyramid frame. Using a non-conductive cord, it is suspended by the top lug and it's orientation controlled using the lower two lugs. The positioning in the pyramid is unusual, being North-East to South-West, as is shown here:



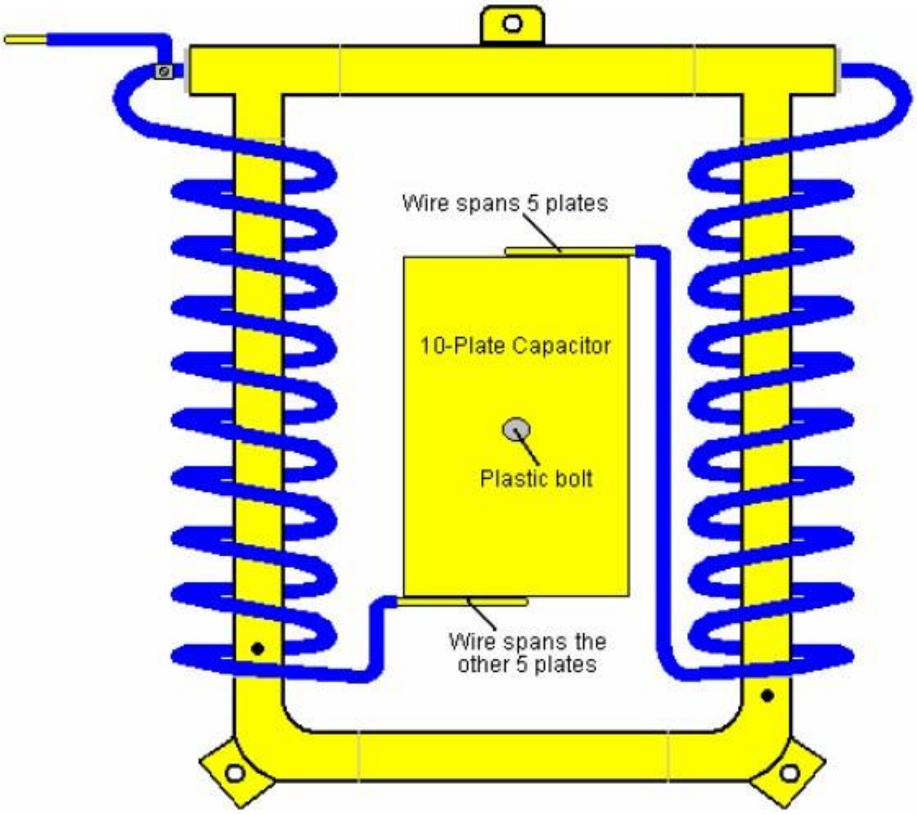
Next, a second capacitor is constructed from 1 mm thick copper sheet. Again, sections of copper pipe can be used after being cut along their long axis and carefully opened out and flattened. This capacitor is just two plates 140 mm x 25 mm spaced 1 mm apart (one inch = 25.4 mm).

Next, a ten-plate capacitor is made from copper sheets 1 mm thick. As copper is very expensive, the copper plates can be produced from spare lengths of copper pipe, cut along the axis and flattened careful to produce a smooth, unmarked surface 70 mm x 35 mm in size. The plates are stacked and accurately aligned, and a hole is drilled 1 mm off-centre. Then each alternate plate is turned around to produce two sets of plates bolted together with a 6 mm diameter plastic bolt, 1 mm thick plastic washers and a plastic nut. A plastic threaded rod and a plastic nut can be used instead of a plastic bolt. Because the hole is not quite central, the plates stick out at each end, giving clearance for attaching the plates together with the copper wire coming out of the copper pipe framework:

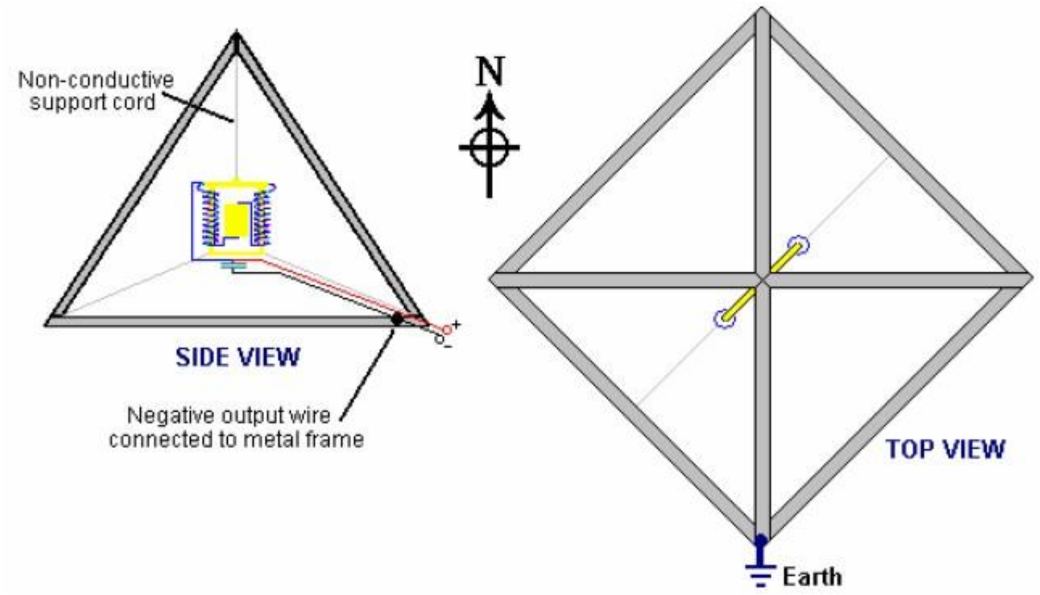
Capacitor Construction



The capacitor is positioned inside the copper pipe frame and held in place by the strength of the 2.5 mm thick copper wire coil around the vertical pipes in the frame:

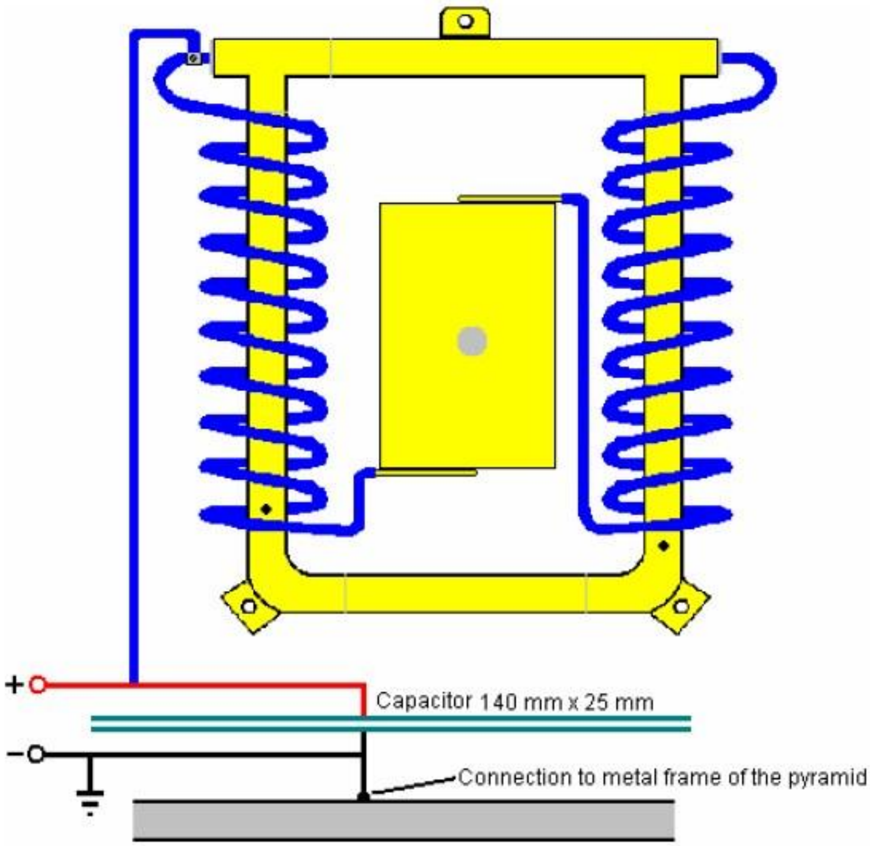


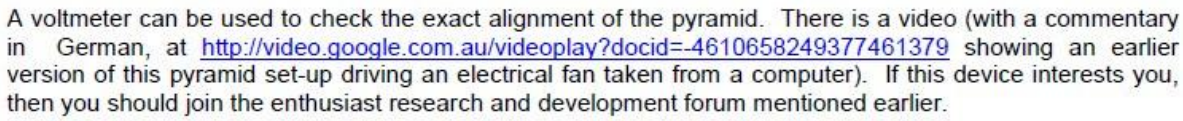
The pick-up sensor is now attached to the pyramid frame. Using a non-conductive cord, it is suspended by the top lug and it's orientation controlled using the lower two lugs. The positioning in the pyramid is unusual, being North-East to South-West, as is shown here:


Non-conductive support cord
+
-
SIDE VIEW
Negative output wire connected to metal frame
N
TOP VIEW
Earth

Next, a second capacitor is constructed from 1 mm thick copper sheet. Again, sections of copper pipe can be used after being cut along their long axis and carefully opened out and flattened. This capacitor is just two plates 140 mm x 25 mm spaced 1 mm apart (one inch = 25.4 mm).

Next, a second capacitor is constructed from 1 mm thick copper sheet. Again, sections of copper pipe can be used after being cut along their long axis and carefully opened out and flattened. This capacitor is just two plates 140 mm x 25 mm spaced 1 mm apart (one inch = 25.4 mm).




A voltmeter can be used to check the exact alignment of the pyramid. There is a video (with a commentary in German, at http://video.google.com.au/videoplay?docid=-4610658249377461379 showing an earlier version of this pyramid set-up driving an electrical fan taken from a computer). If this device interests you, then you should join the enthusiast research and development forum mentioned earlier.

---

http://www.overunity.com/index.php?topic=695.msg71242#msg71242

duff
Re: First electrical power output from a Pyramid
January 17, 2008

I am continuing to experiment.

After some thought I have dropped my sand level to just below the center conductor in the top horizontal copper tube. This will prevent the two sides from shorting via the copper wire.

I am also making adjustments in the salt solution level. I am making small changes and keeping accurate records of what has been injected. I wait a day or so before making further adjustments and record voltage levels between the carbon & copper every hour or so. I have not yet reached a level where solution runs out the right hole and have injected 6 ml so far.

I've also been trying to determine if there is an interaction between the galvanic action of the copper and carbon, the pyramid alignment and height of the energy pickup device. So far I've seen no patterns that I can identify. The only thing I've noted is that the voltage with respect to the carbon and copper is higher with all 4 sides on.

I have never seen any voltage between the secondary capacitor and the pyramid frame other than an ac component. Yes - I have a separate ground from my house wiring and plumbing. It is a ground I setup on a previous experiment. The Earth Ground consists of 26" flat spiral (roughly 50 feet of 1/2 inch copper tubing) buried in a 16 inch hole with an 8 foot ground rod driven through the center to a depth of 16"+96"=112 inches. The ac component is a problem...

Walter Hofmann
January 17, 2008

Hi duff,
I am so damn busy with work that I did have no time to do anything but I will tell from my experience :
I never was able to get some water out of the second hole and the answer is that the water gets up in the vertical sand, thats why I injected about 4mL on ether side very slow,
also I found that with the pyramid frame connected to the ground (totaly seperated 10 feet in the ground) that the voltage what is shown goes down about half,
the covering of all four side's did not make any difference against just three side's, even the bare frame brought pretty much the same result
I have on the secondary cap after charging thru the converter DC and just 0.004V on AC
I only measure between the pyramid frame and the caps or converter . the converter is not connected at all to the pyramide frame this is in order to avoid any influence from a galvanic cell so to speak.
The kick start with a battery brought after the initial voltage run down nothing.
the highest output was the converter set to a hight of 230mm from base and a bit of true north, the pyramide frame set to true north. it was 0.845V, but just one time never again more then 0,4V.
maybe this helps
greetings
walt

tinu
January 17, 2008

@ Duff
I confirm almost all of your findings (or lack of those as it was the case), except the influence of presence/absence of external sides on the voltage. (But the voltage can be influenced by many things, including small variations in temperature; please check it as a possible cause.)

Saltwater might possibly come out at 12-15ml or more, depending on the hole height and other variables (sand texture, etc). But at that quantity of water the whole sand will be pretty much soaked.

@all,
There are many contradictions in the V6 description we have. Some of them do not simply reconcile. For instance, sand will obviously prevent the graphite rods from ?oscillating? at its ?free end?. Wet sand will do much worst?

Much talk can be done on the above issues (/on existing contradictions) but I guess it would be pointless.
I?d rather say in conclusion that it was definitely a hoax. And sorry pese, atlantex and others but I won?t buy the ?enemy story? anymore.
Check for yourself: if not an incredible coincidence, while hundreds of us were waiting for the ?guru? to come back, it seems he was on a prolonged holiday and nothing more:
http://74784.iboox.com/
Then, although I?m not sure it can be verified anymore, I?m telling you that the company?s site was updated during those days; obviously, the story about lack of any internet connection was another lie. I don?t know about the burglary and about the threats threat but I do suspect that the old forum was hacked by TT himself; professional opinions on site security and hacking issues were already posted into this forum and elsewhere.

Now, we may search for free energy but I don?t think is fair that our time and resources as well as we, as human beings, are TT?s playground. Nobody asked him to make promises in the first place and to later mess with them. At least, speaking for myself I do not consider of being his fool and to me, until proved the opposite by himself, he is an ordinary liar or maybe just an ill person. Every bit of information I have (there is more besides the above already posted) points toward this sad conclusion. Comments?

Sorry for being maybe too direct,
Tinu

duff
January 17, 2008

Walter,

My approach is much like yours. First I inject water in the right side and then the left. No solution ran out the right side when injecting the left. I injected in the right side first attempting to create an equal distribution of water and injected the left side last so that the drain action could work when the proper amount was reached.

I agree that the water is being absorbed by the sand in the vertical tubes but at some point the water should run out. I am going slow in a effort to try to determine the precise amount of salt solution it takes to saturate the sand and then produce run off.

On a previous attempt I saw water run out the right side after 6ml but I was injecting it much faster than this time and I got no results.

I think you are refering to the voltage between the secondary cap and the frame. At the moment I am not so much interested in that voltage. I am trying to determine the influence of the pyramid orientation and height of the pickup device on the galvanic action.

In my case the ground does not seem to be influencing the galvanic action. I have run tested with and without the ground connected to the frame. Again I'm NOT looking at the voltage between the secondary cap and frame which is grounded.

My data is showing a slight trend toward higher voltages related to galvanic action with four sides on. Also, the last few nights I'm seeing higher voltages starting around 22:00.

I've condsidered connecting a data logger to it but I'd need to do some calabrations before beginning and it's cold in the garage right now...

Same as yours - My converter is not connected to frame or ground.

I have tested at 233mm & 177mm so far and tried alignment with true north, a few degrees west of true north and magnetic north.

Did anyone get the pictures of Thomas & his wife posted at trawoeger-pyramide.info.

When I saw that picture I thought that looks like Flaivo Thomas who Thomas claims was a fraud.

I think Flaivo video shows the pyramid face aligned to magnetic north. The tic marks to the left are for alignment to true north.

I don't know what city Thomas lives in but most of Austria's magnetic declination is approximately 2 to 3 degrees East depending on your location. So the tic marks to the left (west) would make sense.

Thanks Walter for the input.

fritz
January 19, 2008

Theory of Operation...

I've seen a circuit used as detector for scalar/torsion waves.
You use a permanent magnet inside a faraday shield which is exposed to a coil with one open end, tuneable cap to select the proper frequency.
The theory behind this setup is that the scalar/torsion waves alter the field of the permanent magnet which is causing a time variant

magnetic flux in the coil - which stimulates the energy transfer between the open coil and the cap.

This is as far I am thinking about the closest match to what I?ve seen on the video to v4 converter.

An open point is how the AC is rectified - but this can be due to the materials used.

In such a case the pyramide construction would act as a directionallens which concentrates scalar/torsion waves.

Adam TROMBLY // Douglas KAHN

Homopolar Generator

Critique of the N-Machine Constructed by Trombly & Kahn

by

Bruce E. DePalma
(11 October 1985)

Recently the International Patent Application of Trombly and Kahn (assigned to Acme Energy Co. of San Rafael, CA) has become public property under the Patent Cooperation treaty and can be obtained from the International Bureau of the World Intellectual Property Organization. A copy of this patent application is attached. The difference between the international patents and the US patent system is that in the US the material of the patent is secret until the patent is granted, while overseas the application itself is the basis of the patent, which stands until challenged by a third party.

Thus although Adam Trombly, the senior designer of the machine, has received two written gag orders from the Pentagon Department of Defense, forbidding him to reveal details of the machine --- upon threat of 10 years imprisonment for violating security relating to homopolar generator design -- through the very nature of life itself by a totally automatic process, the attaché document falls into the public domain.

The attached patent application and drawings represent the result of the expenditure of $290,000 in two phases. The DOD-imposed secrecy has prevented any recompense whatsoever from accruing to the men who performed this work. What is described is a machine, an electrical generator whose output exceeds the input by a factor of 4.92.

Summary of Machine Parameters:

Rotor o.d: 14.0 inches
Rotor Length: 9.25 inches
Internal Rotor Diameter: 6 inches
Shaft Diameter (at widest point): 2 inches
Speed: 7200 rpm
Field: 15,000 gauss @ 150 watts field input
Voltage Output: 2.9 volts C @ 15,000 amperes
Drive Motor (DC) input (no load): 1.8 - 1.9 hp (1340-1470 watts) windage & friction
Drive Motor input (loaded): 10.8 Kw, 14.5 hp
Machine Internal Resistance: 6-10 micro-ohms
Output Power: 43.7 Kw (maximum achieved 45.8 kw)
Power gain of Machine: 45.8 / 9.3 (drag due to current withdrawal) = 4.92

In the above figure the 150 watts consumed in exciting the magnet is a negligible factor.

The numbers in the above list of machine parameters which were not included in the patent application have been obtained in private communication with Adam Trombly. The US patent application was rejected twice on the grounds of impossibility that the machine could work, and then the authors were warned not to publish any information on the basis of violation of secret homopolar generator work being done concurrently in the DOD.

Technical Comment:

Trombly and Kahn are two of the brightest young physicists in America today. Their work is of the very highest quality and is reflected in the enclosed report. Technically what was done represents the first stages of the development of the N-machine as an article of commerce. Particularly two items are important.

Closure of the magnetic field path in the Trombly machine allows for high magnetic field strength to be obtained with little effort, i.e., the 150 watts of excitation. Strong magnetism in the N-machine rotor results in high voltage output but at the expense of increased drag. Extraction of current from a machine of this type wherein current is taken out through holes in the magnets (Be-Cu shaft in iron rotor), as well as flowing radially outward (to the edge of iron rotor), as well as flowing radially inward (to the edge of the disk liquid metal contact), through the outer flux return path causes a reverse motoring action which increases the drag of the machine. If the gap between the outer rotor annuli were increased the flux in the central core would decrease but also would the drag of the machine brought about by the anti-motoring action.

Experience as well as design philosophy will decide the proper balance between drag and power gain in a particular machine. In the earlier "Sunburst" machine drag was minimized by not closing the flux path and operating the machine in a totally non-magnetic (brass and wood) environment. Here the measured power gain was 28:1 at 10 kw output (1.5 v.d.c @ 6700 amperes). However, much more power was consumed in exciting the magnet of this machine, i.e., 4 kw vs. 150 watts for the Trombly machine.

A major factor is the construction of the liquid metal brush system, which makes possible the power potential of a low voltage, very high current machine.

The solution described by Trombly seems to have been simultaneously invented by him, DePalma, and the DOD. Without necessarily having to add specific detail, it should be obvious how to enlarge the structure to handle more current. The liquid metal could be circulated to provide additional cooling. Different metals could be used, i.e., mercury. I estimate that the Trombly machine should be able to produce 100,000 amperes without difficulty.

Conversion of the low voltage d.c. output to the standard 110 and 220 volt a.c./60 cps requires innovative engineering. The easiest way is to run a Faraday disk motor at the low voltage and drive a conventional electrical generator to produce whatever voltage and current required. Conversion could also be attempted by interrupting the low voltage high current with some sort of liquid metal commutator and transforming the voltage directly without a transformer. These ideas are treated by Tesla in his patents for the design of liquid metal commutators and interrupters. The voltage could be transformed electronically but at this time is beyond the state of the art of low voltage high current transistors at the present time.

A larger diameter machine could be built. Voltage goes as the square of the machine radius.

The low internal resistance, 6-10 micro-ohms, reported for the Trombly-Kahn machine speaks to the quality of the liquid metal sliding contacts obtained with the construction method described. Low internal resistance is crucial to obtaining high power output and avoiding internal heating.

The Trombly-Kahn machine represents what bright young minds can accomplish given the right circumstances and support. The attempted suppression of this work only point up the feeblemindedness of the gerontocracy that rules science in the USA.

Building a useful N-machine is a high-technology accomplishment. Intelligent designers and craftsmen can take this information and scale it to appropriate needs. The wish is to cause this technology to flourish on Earth.

Bruce DePalma
DePalma Institute

Subject: Re: Adam Trombly, on ZPE, the transformation of humanity
Date: Sep 20, 2006 3:30 PM

Yes, I've discussed Adam Trombly and his F-E device with some of my other colleagues. Sofar, he hasn't been bumped off for his F-E work. He merely went to prison for discussing his generator with ordinary people against the orders of the "high pooh-bah". When we were kids, we learned the expression, "Nice guys finish last". I guess that includes incarceration for doing the right thing for the public, as Trombly apparently did.

Hal Ade.

---

http://cyberjournal.org/show_archives/?id=1773&lists=newslog
http://www.spiritofmaat.com/archive/feb2/trombly.htm

The Truth About ZP Technology -- A Wake-Up Call to the American People

An interview with Adam Trombly

by

Celeste Adams

Adam Trombly is one of the top scientists in the world in the development and creation of Zero Point Energy technology. Devices that he built are working today in other parts of the world. And yet, instead of using Zero Point Energy, Adam Trombly's own house in Maui is being fitted with a bank of expensive solar panels.

Why can't Trombly use his own expertise to fuel his own home? Trombly has spent most of his professional life under one gag order or another. But he decided, he told us, "that if I was going to give an interview for this particular publication, I wasn't going to pull any punches." If much of this seems overly negative, keep reading. Trombly wants to wake us up, and to shine a light upon things that have been kept dark. But his grounding is deeply spiritual. It's just that the Divine forces that seek to assist us cannot do so unless we call upon them. "Now, in this moment," he tells us, "we must come out and ask for help. When we can ask for help, we get it."

Adam Trombly's revelations will shock you to the depths. But it is his hope, and ours, that it will help you to awaken, or to assist you in your task of awakening others. Trombly's ultimate vision is the "redreaming of the American Dream."

Adams: How did you become interested in free energy?

Trombly: I was raised as a scientist and I have spoken the language of science all of my life. My mother was a blood specialist, my father was a biochemist, and my sister was at one time a biophysicist.

When my father had just gotten his Ph.D. in biochemistry from Purdue University -- I was a young child -- he was enlisted as a biochemist, by a fellow Purdue alumnus named Frank Olsen, into a U.S. Air Force/CIA joint project. He was stationed at the biological warfare laboratory in Fort Detrick, Maryland. This was in 1952 during the Korean Conflict. He had been a highly decorated U.S. Army Air Corp officer in World War II, but the government felt that he had a skill of strategic importance to the national security.

At Fort Detrick, he and Olsen, along with a couple of other scientists, were working on a very compartmentalized project. Since he died when I was in the eighth year of this body, I knew very, very little about what this project involved. On the seventh anniversary of his death (4/3/1967) I was in my mother's attic, putting out mousetraps, when I discovered a couple of boxes that contained journals my father had kept during his time at Detrick. You weren't supposed to keep journals, but he did.

One of the things he wrote about in his journals was his exposure to alien technology that totally defied what were considered, at that time and even still to this day, the laws of physics.

He wrote a letter to Dr. Quackenbush, who was on his dissertation board at Purdue, saying that what he had seen challenged even his "most vivid imagination." This was right after he got there.

After he had been there about a year, the notes he wrote got really interesting. He specifically described various technologies which he stated plainly were of "alien origin." He described not only flying disk-shaped craft and their related energy and propulsion systems, but Extraterrestrial Biological Entities. His work was actually concerned with them.

On November 19, 1953, my father (along with Dr. Frank Olson and a couple of other colleagues) was taken by Dr. Sidney Gottlieb to a summer camp near Baltimore. While there, he and his colleagues were involuntarily given large doses of LSD in their cocktails; doses on the order of 10,000 to 15,000 micrograms. Olsen knew about the experiment, and out of concern for my father told him, "Harvey you have been given a psychoactive drug and you are beginning to feel its effects. Don't worry."

Olsen had also taken a large dose of acid, and later freaked out because he said he had, "blown the experiment." It was supposed to be a double-blind experiment for all of the participants other than Olsen. He was supposed to keep silent.

Frank Olsen continued to feel unsettled, and was rushed by CIA personnel to New York for psychiatric examination. Something terrible happened instead. Frank was bludgeoned in the head and then thrown from his hotel room window. He was murdered. This, at least, was the conclusion of forensic pathologists hired by Frank's son Eric in 1994.

My father filed an internal protest demanding an investigation of his friend's and colleague's death, and that was what ultimately triggered the events that killed him.

In January of 1954, under the illusion that he was being immunized from a new retroviral biological warfare agent, he was injected instead with a live virus that he had discovered during his research. He became extremely ill. In his notes, he indicated that he immediately knew.

"They killed Frank," he said, "and now they have killed me. The difference is that I will die slowly, very slowly."

He died in 1960, from a form of lymphoma as eleven government labs did morphological workups of his cells.

When I discovered that his death had not been an accident of nature, I was heartbroken. I despaired of life. I sat with a knife a quarter inch into my chest, with blood already trickling down, begging whoever was present at Infinity to reveal the truth of existence.

And in the next moment, I suddenly had no doubt of God or, if you prefer, the Buddha Nature, and I saw things with great clarity.

Adams: Do you believe that we're in denial about the involvement of aliens in the affairs of this planet?

Trombly: The American public has been lied to for so long, they wouldn't be able to recognize the truth if Jesus told them personally.

It's very difficult for the American public to know what is going on. In many ways, we are a nation in denial, and all too often a nation of alcoholics and drug addicts. We are in incredible mass denial.

People see what are referred to as flying saucers and UFOs. Sometimes they are not saucers but triangles. Sometimes they're small, and sometimes they're huge and look like buildings.

It doesn't matter how many people in remote places or in cities see them, or photograph or videotape them. The perceptions are simply shut out.

There are amazing mind-control projects going on. People literally cannot maintain their attention span. More than once I have stood and watched crafts 100 or 200 feet over my head and had people say things like, "Well that's not an airplane," or "Oh, my God, are we actually seeing this?" "Is that real?"

But by the next day, the whole chemistry of denial has set in and those same people say, "Wow, that was a strange airplane, it was going really slow, or really fast, and how did it make that right turn?"

This is what got me started in free energy technology ? though I hate the term free energy, because it's anything but free. Many have paid dearly for its advent. I don't even know what term I like at this point. I use the term Zero Point Fluctuation Technology ? ZP Technology.

I used to have a company called Zero Point Technology. As soon as you put something like that on your shingle, you discover just how unacceptable this concept is to those whose growth stopped so long ago.

People are being bombarded with subliminal messages that tell them that aliens don't exist. Even The "X-Files," which is a joke (thank God they're canceling it), was originally intended, by Chris Carter, to be something more than just random amusement. It was intended to be groundbreaking. But there's government interference. And this is a huge subject. People don't understand that the "other U.S. government" has had contact for decades with cultures that aren't from this planet.

We're like the aboriginal people of New Zealand, or Papua, New Guinea, or any other remote tribe. When they see an airplane, they think that it is a God ? or they at least, they used to. Of course, now they think that it's just people who are more primitive than they are, but who have technology.

We are the same way with "alien" cultures. We are the same way with really clean and advanced electrical technologies that could begin to help us understand just how wonderful and abundant Being -- simply being -- is.

When I got involved in ZP in 1979, I was warned by Buckminster Fuller that if we were successful there'd be hell to pay. If we were actually successful, then it could develop into a real nightmare, because the humans we're dealing with are a species that has been kept in the dark. We've been treated like mushrooms (which are kept in the dark and fed a lot of feces -- there's no nice way of putting this).

The extremes to which these people are willing to go to make your life miserable are phenomenal. They go out of their way to torment those who challenge their utter mediocrity.

Then there are certain people who hang around in the so-called free energy field, who speak at conferences and who have never discovered, engineered, or invented anything in their entire lives that is worthy of note. What they have done is mediocre at best. I won't name them, but they just haven't produced. These are the people who say, "No one has ever bothered me."

These are the same people who -- behind my back and behind the backs of those who have actually produced functional technologies -- say, "Well I've never seen anything that he's produced."

Adams: Can you tell us more about this alien agenda?

Trombly: I know that there's an alien agenda because my father wrote this in his journals. He said he had discovered that the U.S. government had become involved in its implementation. He went further to say that this alien agenda, in his opinion, was contrary to the good of the human species and the planet.

He believed that a sector of the military/industrial complex was involved in a program, basically, to transform our atmosphere, which is benign to our species and other Earth species, into one that is greatly reduced in terms of its oxygen content.

So this is a force which doesn't have good intentions for us. It is a force that would gladly exterminate us. And yet human beings act as agents for this force. The "human" species is exterminating itself, by its own hands.

My father spoke of alien agendas in his most secret thoughts. This was not something he spoke of in public. He would never have given this interview, I'll tell you that much.

Adams: What species is this alien force?

Trombly: I can't say, but I can say that the species that are trying to harm us are a tiny minority of a vast host of alien species. My father knew of a couple. It wasn't just one, even back then. This sounds very far fetched ? I know it sounds nuts. But I decided if I was going to give an interview for this particular publication, I wasn't going to pull any punches.

Adams: Many of the people who read this will share your belief system.

Trombly: Well, this is not about a belief system. I don't like belief systems! This is about reality! We are the ones who are collectively destroying the womb of the Earth in which our species gestates, in which we evolve.

There are real terrorists in Washington, and even, I dare say, in the White House. And we are very rapidly approaching the time when that statement will be considered criminal. The incident we call 9-11 was a mockery. Now, every time someone dials 911 they'll think of the evil demon Osama bin Laden who in fact is someone we helped to create.

Alkhaida was largely financed by the U.S. government. We gave the Taliban 128 million dollars last year to suppress the growth of opium in Afghanistan. Where do you think that money came from? Where do you think it went?

Everyone thinks the 9-11 was caused by Osama bin Laden and his cronies. There's no doubt that some of his money comes from Saudi Arabia, but the fact is that the U.S. government is the primary source of funding for the Taliban. Why? Because Dick Cheney and his cohorts want to build an oil pipeline through Afghanistan.

Adams: What has happened to the free-energy technologies that you've produced?

Trombly: Every single technology that I have either invented or co-produced is no longer in my possession. There's one in Arizona that has supposedly become a national security issue.

A former colleague of mine once went off on his own with a design that he and I had come up with. He built a device that was very successful -- and is now in a can, and he is a shell of his former self.

Forget about whatever technologies I have had a hand in reducing to practice. We have heard from very credible sources that these are nothing compared to the technologies already being produced by certain prime contractors right here in the United States.

Why is it a national security issue? Why is a generator that generates several times more output than input a security issue? Why is it that the American people cannot enjoy what their tax dollars are paying for? Why is it that we have a government that is willing to deny the American people access to the very technologies they themselves are secretly producing?

It's not a joke. Our government has produced technologies, with our tax dollars, that could immediately begin to reverse the damage done by the irresponsible use of fossil fuels, and they are not allowed to be used.

They continue to pollute this atmosphere, and they continue to reduce the amount of metabolically available oxygen. Who could possibly benefit from that? What species do you know of that is actually better off today than, say, fifty years ago?

What is it that we do when we burn these fuels? We make fire. What is fire? Fire is a rapid oxidation process that releases heat. The real destroyers of the equatorial rain forest are forest fires, because of the incredibly poor husbandry. There's nothing good you can say about what's being done to this planet!

There are far too many people in the U.S. government and other national governments who are acting in a way that is completely moronic and self-destructive. It is not a human agenda! This is what I'm trying to get you to see. There is this whole other thing happening.

We are exploited by a corporate structure -- by the "military/industrial complex" Dwight Eisenhower warned us against in his farewell address to the nation. Eisenhower got the term "military/industrial complex" from Mussolini, who was describing Fascism. These are words you don't want to use in our society.

At Project Earth we get mail from all over the world, and the one word that keeps coming up since our last so-called presidential election ? about that debacle, that tragedy ? is the word "coup." From the perspective of the vast majority of the human species, it was a coup. They say this in India, Japan, South Korea, France, Holland, Spain ? everywhere. In spite of the fact that we never posted an article on our website that said or even suggested that we had a coup, people write to us and say, "How come the American people don't realize that they just had a coup?"

Then, following on that coup, we have 9-11. Everybody is terrified, but people don't want to talk the way I'm talking now. They think it's self-destructive.

I tell you truly, it is our collective silence that is truly destructive.

The United States of America is a sacred idea. It is a sacred thought-form. What was America to the people who risked and frequently lost their lives to create it? It was the New Jerusalem. The spiritual foundation of the United States of America is an absolute necessity of our spiritual dimension. It was founded on the basis of the absolute need of the human spirit for freedom.

But freedom brings with it great responsibility and demands great intelligence.

We do not want to live in hell, but we are creating hell for ourselves. We are tormenting each other and ourselves. We're doing these things as if we have no choice. We are truly brainwashed.

The real ultimate cult that's going on in America is this one of jingoistic, flag-waving, unquestioning patriotism. We can get ourselves all hyped up on Zoloft, and that still doesn't change the fact that we as a nation have lost an incredible amount of prestige and trust because of what happened in 2000.

No matter how much money we put into the military budget, we will not be able to restore that trust in our own people or in the rest of the world until, through grace or the incarnation of the Divine Process, our democracy is resurrected from its present contrived state. It is a travesty.

When Dick Cheney refuses to turn over documents to investigators, he gives comfort to our enemies. Truly dangerous and deranged people in truly difficult countries like Pakistan cite the actions of our corrupt public officials as justification for their actions.

If we say to the world that we represent Freedom and Democracy, then by God we have an obligation to be Free and Democratic.

In the meantime, the world laughs, because perfectly capable intelligence officers in the United States are oppressed for the sake of short-term political agendas.

The Central Intelligence Agency attempted to warn the White House before September 11. The entire affair was handled with what can only be called incompetence. While three-oletter agencies spent our tax dollars listening to my calls, true terrorists were going to flight. And in spite of over an 18-minute warning crash, a second full-size passenger jet went into the World Trade Center.

Even so, we are all supposed to fall into line and cheer.

Once, in 1986, I was introduced to a man in Toronto, Canada, who turned out to be a major Soviet technology spy. When he offered me a lot of money and a lot of benefits if I would turn over mechanical drawings for an electrical generating technology I had co-invented, I told that agent to go screw himself. I told him I was under a gag order, and that I would not violate that order.

He responded by saying, "What loyalty do you owe to your country? They have done nothing to help you or your work. If you cooperate with us we will appreciate you and take good care of you and your family. Three hundred million people will benefit from your technology. Who cares if a shaft is made in Leningrad or if assembly occurs near Moscow?"

Once again, I told him to go screw himself, to go back to the totalitarian hell that he came from -- and then I got the hell out of his office.

In September of 1986, I turned this man in to the FBI -- and as a consequence, I ended up under investigation myself!

In February of 1987, the counter-intelligence unit of the FBI contacted me. During my second so-called "interview," one of the special agents who interviewed me was Robert Hanson, now known as a famous spy for the former Soviet Union.

Hanson interviewed me about whether or not I was a spy. But he knew I wasn't a spy, because he was!

It's not just the U.S. government that's suppressing all this stuff, it's the whole theater of this species. The "human" species has rarely demonstrated qualities that say that it should be maintained or can be sustained.

This species has never acted in a way that is consistently to its own benefit. For thousands of years, this species has acted in a manner that can only be described as both sadistic and masochistic, and on a planetary scale. It has not acted intelligently.

At the same time, there is no decision to change, because the vast majority of the human species don't even realize that we have a choice to do that. They don't realize that we have the choice [to] live intelligently. They don't even know or what that would entail.

My protests to the "powers above" are consistently related to this central fact: "I know there's a choice, you know there's a choice, but the general population on this planet has no clue that there's a choice. We can choose to live in a completely abundant and pollution-free environment. We can make that choice and have more abundance, and not less abundance. We can stop spending money for fuel. The capital expenditure for fuel could be completely eliminated. That would free up trillions of dollars annually, globally, from the world budget, from the planetary budget."

If you want to know why I got involved in this technology, it's because we have a way to generate almost boundless levels of electrical power without any pollution or fuel, without even the need for solar panels or wind power.

It's ridiculous that I am installing solar panels in my home, when I have spent the last 23 years of my life in the field of ZP Fluctuation Technology research and development and have on more than one occasion successfully demonstrated it along with colleagues who have also learned the same hard lessons that I have.

Adams: Can we still restore this planet?

Trombly: We can if we act with great clarity and great speed. No obstacle could stand in our path.

We could even reclaim the Sahara Desert. It didn't used to be a desert. It was destroyed by people who cut down the forest and overgrazed the grasslands that were once there. Now the same thing is happening in Brazil, Indonesia, China and South East Asia.

These forests and grasslands are like your skin. What does the skin do? It keeps us from becoming dehydrated. When a person gets third-degree burns, one of the leading causes of death is dehydration. The same thing is true of the forests and grasslands.

It's about maintaining that tissue and understanding that it is very vulnerable. These membranes are being taken away.

We can also reclaim the desert that is forming in the northeastern corner of Brazil, where there was rainforest a hundred years ago. The Brazilian desert exists because the Brazilian people won't stop cutting down their own trees. I say this very bluntly. If the Brazilian people want to demonstrate that they have some intelligence, then they'll stop cutting down the rainforest, which is the equatorial life support of our planet.

If the United Nations and if the American government want to demonstrate their intelligence, then they will suggest that we should give credits to these countries for their oxygen production.

We can reclaim the deserts by these new technologies, by taking the water out of the oceans and using it on the desert.

Where you run into the logjam, over and over with all these issues, is the question of energy.

How can we heal the ozone layer? It's going to take a tremendous amount of energy to do that. We have to replenish the oxygen that's not getting into the stratosphere.

One of the fundamental points that I try to make is about chlorine. It is a molecular demon once it gets into the ozone layer. One chlorine ion can interfere with the production of 100,000 molecules of ozone. So we have to eliminate as much free chlorine and bromine as possible.

But even if we entirely eliminated chlorine and bromine production, that would still not be enough to heal the stratospheric ozone layer.

Another significant cause of ozone depletion, one that is often overlooked, is the reduction in the amount of oxygen that should be transported into the stratosphere over the equatorial rainforests. Project Earth has been trying to educate people to this fact since the mid-eighties. The oxygen source has literally been cut off by deforestation. But we can heal that by reintroducing a tremendous amount of oxygen up there, and replanting the forest down here, on Earth.

It will take energy. Lots of it.

Adams: Can you describe how your life has been endangered because of your perspectives on free energy?

Trombly: If I had described my life to you since 1980, it would be a long, long story, and it would sound like a bad spy novel.

I've had a number of attempts on my life through really serious poisonings. My wife has had to revive me and give me CPR.

So we've had a whole nightmare component to our life. But we don't live in a nightmare at all. It's quite the opposite.

However, I must say that it has been almost unimaginable at times.

Once, in 1988, I was visited by a couple of scientists at my home in Colorado. One of them was Bob Dratch, a man who has done a lot of work in creating microwave detection equipment, which is widely used by the Department of Defense.

Basically, I was standing in my office, which was a large room, 27 feet long, and Bob Dratch was shaking change in his pocket, to demonstrate that his very sensitive microwave detector could pick up the signal this jingling generated. The signal would appear on the meter and the printout.

I pointed the horn of the device at Dratch to measure the effect. And then, as I pointed the horn away, I kept my finger on the trigger and happened to point it out the window of my office. To our surprise, the alarm went off on the machine! The red light went on, and the meter peaked.

My office was being microwaved!

We walked into my back yard and found the place where the signals were being broadcast. It was right behind my house, in a little forest, right next to an engineering company that is well known for making satellite antennas.

We clipped the cable to the antenna that was broadcasting microwaves at my house, and I called the FCC in Denver and I said told them that this was illegal and I wanted it stopped now. I said, "Stop microwaving me." I already had cancer.

Within three weeks, this engineering company was totally gone. I assume they themselves had something to do with the broadcast, or they wouldn't have left so suddenly.

So dozens of people had to relocate to Kansas, or whereever.

But why were they trying to kill this body? We are perplexed at times by the strange modus operandi of this group.

The world is not going around very well right now, because people aren't loving. When people love, they become geniuses. Intelligence isn't about thinking, it's about feeling. I don't care how many times the force of darkness, which resists love, has attacked you and made you feel separate.

I don't care how difficult anyone's life has been. I guarantee you, I can match it. But suffering is finite, it's limited, it's not eternal. You can transcend suffering through love.

The resurrection we are called to is our resurrection. Once Jesus stood in front of Lazarus' tomb, and commanded, "Lazarus, come out." And we are told that Lazarus came out.

That is similar to what is happening right now. Surrounding this planet, there is a gathering which is inviting the human species into a new dimension. They are saying, "Lazarus come out, come out of your subjective tomb and out of your corruption. Come out of your doubt of God and out of your doubt of Love. In the midst of Infinity and Eternity, We command you."

Now, in this moment, we must come out and ask for help. When we can ask for help, we get it.

People don't understand that you become realized by incarnating love. We live only as expressions of love, in eternity. The only thing that is eternal is Love. Love as the presence of consciousness is eternal and infinite.

Time and space are subsets of eternity and infinity. Space and time are subjective states, and they have nothing to do with limiting the ultimate reality of consciousness, not even a little bit. They have to do with the gnarled subjective states of the contracted world.

Scientists talk about the accelerating expansion of the universe, but it's not that, it's the unremitting transformation of the universe that's happening, the inescapable transformation of the universe.

You don't have a choice about it this time. It isn't the same as it was two thousand years ago. We are in the midst of the time of the resurrection. It involves you and me and everyone on this planet, I don't care who they are.

There will be miracles everywhere. The most powerful thing is love. The whole astrophysical community is now acknowledging this power, but they call it the "dark energy." They give it this Darth Vader quality, because they don't know how to relate to the Light. It is the contraction of form and the denial of the Infinite Divine that causes the appearance of darkness.

Adams: How long has there been a conspiracy to prevent the development of free energy?

Well, if you are referring to the technological side of things, I guess you could say it started with Nikola Tesla. (Although the crucifixion was really an attempt to stop Free energy as well.)

Nikola Tesla was given the vision of infinite electrical power, without fuel, in the 1880s. He demonstrated it in 1886 and 1889, and then throughout the 1890s. He tried to give this gift, but the fossil fuel boys decided he couldn't give it. The fossil fuel boys decided that maybe they could make use of him, so they didn't kill him right away. They killed Tesla in 1943.

One of the detectives approached me in 1981, at a conference. This man told me that Tesla had been murdered. So I guess you could say that it all began right there. When I was a kid in school, nobody knew about Tesla. Tesla was the father of alternating current electricity. Tesla said he was inspired by aliens, beings from other dimensions. He was anathematized because he refused to kowtow; he refused to attend the same temple that the others worshipped in.

Adams: How can we make free energy available to the planet?

Trombly: There is no such thing as free energy without enlightenment and liberation. The technologies point to free energy. We are the technology. We are the free energy.

Great yogis like Sri Babaji demonstrate this. Yogananda talked about him. He was the physical demonstration of free energy. He was the physical demonstration of what the Tibetans called the Rainbow Body. He was transparent and transfigured in God realization, the realization of the Buddha Nature.

There are alien cultures and cultures in other universes who happen to be attentive to the events on this planet because this is one of the last archetypal moments. This will not continue anymore. This entire kind of universe is obsolete and will not occur again, because it would be masochism and sadism to allow it to be perpetuated.

There's a transformation that is occurring. It is about the liberation of all the energy that has been bound up in all of these worlds that are subject to corruption. That is the real physics. This is what is really important.

In the meantime, by understanding that this is true, we can tap into a field that we call Zero Point Vacuum Fluctuation or the quantum ether, and we can generate electrical power. Electrical power exists in complete abundance, without any capital cost for fuel.

Solar technology is so very expensive. We have 108 solar panels in our two facilities on Maui and it takes up a great deal of space. I would love to have ZP Technology here, but the fact of the matter is, if I had that working right now, this place would become a target.

The other side of this story is always the same thing. Just when Light appears on this planet, the subjective forces of darkness manifest with great tenacity. This government was overthrown and nobody knows anything about it. People are silent about it.

On the cover of Newsweek, on September 11, was an article about the secret vote that made Bush president. The article was about a conspiracy in the Supreme Court. Newsweek at that time was willing to challenge the Supreme Court. The Executive Branch of the United States government was about to fall, because it was going to be exposed.

But then the planes hit the World Trade Center.

If Al Gore had been elected, I know the man well enough to know that we would have been in a different economy after four years. We would've begun to implement these technologies.

The United States government has, right now, the technology to eliminate the energy crisis. This consoling gesture that George Bush made the other day, about developing hydrogen fuel-cell technology, is just a carrot that he's dangling before the American people.

Now there are military people who have come forward and are talking about the presence of aliens and alien technology on this planet. They are even talking about the fact that we are making our own flying saucers. This Disclosure Project is extremely important for people to know about (see Secrets from the Stars elsewhere in this issue).

We could be having the greatest economic boom in the history of history. We could actually do that. The technology exists. As early as the 1970s, Henry Kissinger, George Bush, Richard Nixon-- all kinds of these guys -- knew about this physics. But the downside is that we are on the brink of oblivion.

Parents are paying all this money to educate their children into the lie of physics instead of the truth of physics. Meanwhile, they are taking Prozac. We have legalized the anesthetization of our species. Depression is appropriate.

Adams: What is the purpose of your organization, Project Earth.

Trombly: The original foundation of Project Earth was to reveal to the human species the actual condition of our planet. We're not being told the truth about it. For the most part, the scientific community doesn't know the truth and has been so disempowered by their so-called education that they've lost vision.

Vision is the only thing that will save us. You have to be able to see where you're going.

The agreement that I made with the Divine is one that Bucky and I talked about. We would never just illuminate the problem, we would always offer a solution. If we talked about an energy crisis, we would talk about only it in the context of the fact that there is no energy crisis.

Electrical power is already abundantly available, pollution free. We like electricity. We can power our cars and flying saucers with infinite electrical power. We could have so much fun that living on earth wouldn't be a drag, but would be really great.

Your eyes would be so open that you would walk out the door and you wouldn't see the smog in Los Angeles, but you'd see the clear, sacred air.

Project Earth is not just about communicating the problems. It's about the transformation of humanity.

Adam Trombly, Director of Project Earth, is an internationally acknowledged expert in the fields of Physics, Atmospheric Dynamics, Geophysics, Rotating and Resonating Electromagnetic Systems, and Environmental Global Modeling.

Taking the advice of his friend and mentor R. Buckminster Fuller, Adam has maintained a "synergistic, global view" within a multi-disciplinary scientific background. From this perspective, Adam offers unique insights into the changes humankind has effected on our environment, and the adjustments our future requires of us.

For further information about Project Earth, please visit ProjectEarth.com.

Trombly and Celeste Adams spoke on 21 January, 2002.

Closed Path Homopolar Machine

Inventors: **Adam D. Trombly & Douglas Kahn**
Acme Energy Company: 25 Mitchell Blvd, San Rafael,CA 94903

International Patent Application Number: PCT/US81/01588
International Patent Classification: H02K 31/00, 39/00
International Publication Number: WO 82/02126
International Publication Date: 24 June 1982

Abstract -- A co-rotating homopolar generator has a rotor (12) comprising a disk conductor (30) and co-rotating coaxial electromagnets (32a and 32b) on either side, and achieves improved operation by utilizing a low reluctance magnetic return path for the magnetic flux that passes through the disk conductor (30). The low reluctance path permits the electromagnets (32a and 32b) to produce a high field with a relatively low value of coil excitation current. Thus overheating is avoided and the full potential of the homopolar generator is achieved. The low reluctance magnetic return path (220) is preferably provided by a relatively high permeability co-rotating enclosure (having enclosure halves 37a and 37b) of sufficient radial and axial dimensions to enclose the electromagnets and disk conductor of the rotor. The disk conductor (30) is preferably constructed from a high permeability, low resistivity material such as iron, and can indeed be integral with the electromagnet cores (35a and 35b).

Field of the Invention:

The present invention relates generally to electric generation, and more particularly to a homopolar machine having high efficiency.

Background of the Invention:

Electrical generation typically involves the conversion of mechanical work to electrical energy. In these energy conscious times, it is most important to achieve as high a conversion efficiency as possible.

It is well known that if a conducting disk is rotated about its axis in the field of a fixed magnet such that the magnetic flux lines intersect the plane of the disk, a voltage is induced between radially distinct portions of the disk. Such a device is known as a homopolar generator. Although less well known, it is also known that if the magnet is fastened to the disk, and the whole assembly co-rotated, a voltage is also induced between radially distinct portions of the disk. M. J. Crookes, *et al*., in a recent article in the *American Journal of Physics* 46 (7): 729-731 (1978), note with amusement that while the co-rotating type of homopolar generator seemed to the authors to be a brilliant new invention, it was "belatedly discovered that Faraday got there first". According to the published results of an experiment performed by Michael Faraday in 1832, "a copper disk was cemented upon the end of a cylinder magnet, with paper intervening; the magnet and disk were rotated together and collectors (attached to the galvanometer) brought in contact with the circumference and the central part of the copper plate. The galvanometer needle moved as in former cases, and the direction of motion was the same as that which would have resulted, if the copper only had revolved, and the magnet had been fixed. Neither was there any apparent difference in the quantity of deflection. Hence, rotating the magnet causes no difference in the results; for a rotary and a stationary magnet produces the same effect upon the moving copper".

Bruce E. DePalma, in an article in *Energy Unlimited* 5: 16-23 (1980), makes the further statement that unlike a conventional generator which resists rotation when current is drawn, a homopolar generator having the magnet and disk conductor rigidly coupled to one another operates in a manner free of such rotational drag. More particularly, it is suggested that due to the fact that the torque is absorbed in the assembly, conversion efficiency beyond that normally achievable should be possible. To date, there have been attempts to build co-rotating homopolar generators, but the devices appear to have been troubled by overheating and other engineering difficulties that have tended to mask the potentially high efficiency.

Summary of the Invention:

The present invention provides a co-rotating homopolar generator that avoids the heating problems of prior machines and renders possible and convenient the generation of electricity at extremely high efficiency. The generator has a rotor comprising a disk conductor and co-rotating coaxial electromagnets on either side. The present invention achieves the improved operation by providing a low reluctance magnetic return path for the magnetic flux that passes through the disk conductor.

The low reluctance path permits the electromagnets to produce a high field (limited to 2.2 tesla by the saturation of iron) with a relatively low value of coil excitation current. Thus overheating is avoided and the full potential of the homopolar generator is achieved.

In the preferred embodiment, the low reluctance magnetic return path is provided by a relatively high permeability co-rotating enclosure (designated a "flux return enclosure") of sufficient radial and axial dimensions to enclose the magnets and disk conductor of the rotor. Additionally, the disk conductor itself is preferably constructed from a high permeability, low resistivity material such as iron, and can indeed be integral with the electromagnet cores.

Output power is drawn between the periphery of the disk conductor (within the flux return enclosure) and the rotor shaft through fixed disk and shaft brushes. The disk brush protrudes through an annular slot in the flux return enclosure, and is geometrically configured so as not to add a large amount of reluctance to the flux return path. To this end, the disk brush is formed with a relatively thin web portion that passes through the enclosure gap. The web portion still has sufficient thickness so that the mechanical strength o the brush is not compromised. Moreover, the web portion has sufficient thickness, and hence conductance, that the saving in magnet power is not offset by excessive ohmic heating in the web portion.

For a further understanding of the nature and advantages of the present invention, reference should be made to the remaining portion of the specification and to the attached drawings.

Brief Description of the Drawings:

Figure 1 is a sectional isometric view of a homopolar machine according to the present invention;

Figure 2 is an electrical/mechanical schematic view of the homopolar generator;

Figure 3 is a sectioned oblique view of the rotor and shaft;

Figure 4A is an isometric view showing the construction of the disk brush

Figure 4B is a fragmentary enlarged view showing a portion of the disk brush;

Figure 5A and **Figure 5B** are exploded isometric views of the shaft brushes;

Figure 5C is an isometric view of the magnet brush;

Figure 6 is a sectioned isometric view of the magnet brush;

Figure 7 is a sectioned oblique side view showing the brushes, bearings, and casing, with the rotor shown in phantom; and

Figure 8 is a sectioned isometric view of the shaft end seal.

Detailed Description of the Drawings:

Overview:

Figure 1 is a sectioned isometric view showing a homopolar generator according to the present invention. **Figure 2** is an electrical and mechanical schematic of the generator system incorporating generator 10. Generator 10 comprises a rotor 12 mounted to a shaft 15 journaled in bearing assemblies 17 and 18 for rotation within a casing 20. The casing maintains rotor 12 within a controlled atmosphere (slightly pressurized nitrogen). One end of shaft 15 protrudes outside casing 20 through a shaft seal assembly 21 and is provided a drive sheave 22 to communicate mechanical energy from a drive motor 25 of any conventional desired type. A shaft end bearing 27 takes up radial loading on drive sheave 22 due to the coupling with motor 25.

Broadly, rotor 12 comprises a central disk conductor portion 30, flanking electromagnet coils 32a and 32b with respective associated iron core portions 35a and 35b, and a flux return enclosure having enclosure halves 37a and 37b. When high currents are involved, the disk may more closely resemble a cylinder. However, the term "disk" will still be used for the conductor that corresponds to the disk of Faraday’s experimental device. Electromagnet coils 32a and 32b are series connected between shaft 15 and an electrically isolated shaft portion 40. Excitation current is provided by a magnet excitation power supply 42 which is coupled between a magnet brush 45 which rubs on electrically isolated shaft portion 40, and a pair of parallel connected shaft brushes 47 and 48. An outer portion of disk conductor 35 engages a disk brush 5 and output power is drawn between disk brush 50 and shaft brushes 47 and 48. As will be described more fully below, generator 10 has the capability of operating at extremely high efficiency.

Rotor & Shaft:

Referring to the sectioned oblique view of **Figure 3**, the detailed construction of rotor 12 and shaft 15 may be seen. While there is no particular significance to absolute dimensions, the description that follows will be in terms of an illustrative generator whose rotor has an outer dimension of 14.0 inches and an axial length of 9.25 inches, with the rotor being being carried on a shaft of diameter 2.0 inches. Where practical, suitable proportions will be maintained in isometric and oblique views so that other dimensions may be ascertained from the drawings. Disk conductor portion 30 and electromagnet core portions 35a and 35b are constructed of high permeability, low resistivity material such as iron, and may be integrally formed as a single iron rotor core, designated 55. Rotor core 55 is brazed to shaft 15 which is preferably made of a copper-beryllium alloy. A suitable shaft material may be obtained from Brush Wellman Company under the name of Brush 3 Alloy. This is an alloy characterized by a high electrical conductivity (50% of copper standard) and a high module of elasticity. A circumferentially extending copper contact 57 is brazed to the outer surface of rotor core 55 at the axial midpoint thereof and contacts disk brush as will be described below.

Electromagnet coils 32a and 32b are wound with epoxy-impregnated wire which may be no. 12 size in the illustrative embodiment. Iron annuli 60a and 60b are bolted to opposite ends of rotor core 55 to define therewith a spool which axially confines the coils. The series connection between isolated shaft portion 40 and shaft 15 is defined by first, second, and third magnet conductors 62, 62, and 64. First magnet conductor 62 runs from shaft portion 40 along the axis of shaft 15, and then radially outward to coil 32b. Second magnet conductor 63 runs between coils32a and 32b, passing through brush contact 57. Third magnet conductor passes radially outward from coil 32a to shaft 15. Electromagnet coils 32a and 32b are provided with respective high tensile strength wrappings 65a and 65b, preferably fiberglass-epoxy tape, to prevent centrifugal destruction of the coils.

The flux return enclosure provides a low reluctance magnetic path for the magnetic flux lines passing through rotor core 55 and should therefore be made of relatively high permeability material. For example, enclosure halves 37a and 37b may be constructed of medium-high permeability, high tensile strength, forged silicon steel. Enclosure halves 37a and 37b are bolted to rotor core 55, and together define a cylindrical enclosure within which are located electromagnet coils 32a and 32b, rotor core 55, rotor core 55, copper brush contact 57, and magnet coil wrappings 65a and 65b. Facing portions of enclosure halves 37a and 37b are spaced apart to define a circumferentially extending slot 66 that permits disk brush 50 to engage copper contact 57. Slot 66 is approximately 9/32-inch thick in the region between enclosure halves 37a and 37b, but broadens to approximately 1.0 inch thick in the region between electromagnet coils 32a and 32b. Enclosure halves 37a and 37b are provided with respective high tensile strength wrappings 67a and 67b.

As stated above, shaft 15 is characterized by a 2-inch diameter in the rotor region. Axially away from rotor 12, shaft 15 is of lesser diameter, being reduced to 45 millimeters in the region of bearing assemblies 15 and 17. Proceeding axially away from rotor 12 in a first direction toward isolated shaft portion 40, shaft 15 is formed with radially relieved portions 68 and 69 to define therebetween a first annular collar 70 for engagement with shaft brush 47. Proceeding axially in the other direction, shaft 15 is formed with an annular groove 71 spaced from the shaft end to define a second annular collar 72 for engagement with shaft brush 48.

Brushes:

Figure 4A is an isometric view showing the construction of disk brush 50. Disk brush 50 comprises symmetrical halves 75a and 75b which, when bolted together in coplanar relationship, completely encircle rotor 12. Disk brush half 75b is shown only in phantom. Since disk brush halves 75a and 75b are similarly constructed, brush half 75a only will be described. Brush half 75a is in the form of a 1-inch thick rigid copper plate with a semicircular opening 77 along an edge thereof, opening 77 being adapted to cooperate with a similar opening in brush half 75b to form a circular aperture. A semi-annular web portion 80 of reduced thickness surrounds opening 77 in a spaced concentric relation thereto, and defines an inner brush portion 82 between opening 77 and web portion 80. Web portion 80 is approximately 1/4-inch thick while inner brush portion 82 is approximately 13/16-inch thick. Web portion 80 has a radial extent that is only slightly greater than the radial extent of the facing portions of flux return enclosure halves 37a and 37b and their associated wrappings 72a and 72b. At the same time, web portion 80 is sized to fit within slot 66 of rotor 12 with a small clearance (for example 1/64-inch on either side). Inner brush portion 82 is sized to fit within the broadened slot portion between electromagnet coils 32a and 32b, and engages brush contact 57. Axial clearances are somewhat broader than those surrounding web portion 80. A clearance of 3/32-inch on either side is suitable.

The outside dimensions of disk brush halves 75a and 75b are not critical, nor are the particular outside configurations. However, it is important that the brush halves have portions that extend sufficiently beyond the outside surface of rotor 12 to permit proper mechanical support with respect to casing 20. A height of 18 inches and a width of 20.5 inches (total brush width of 21 inches) is suitable.

As will be described below, generator 10 is operated under conditions of very high current so that brush resistance must be minimized. This is accomplished by wetting the brush contact areas with liquid metal, and providing a structure to hold the liquid metal in place. To this end, inner brush portion 82 carries a fixed contact assembly 85, which may be seen with reference to the fragmentary oblique sectional view of **Figure 4B**. More particularly, inner brush portion is formed with an inwardly opening recess 87 which broadens beneath the surface to define opposing lips 90 and 91 spaced to receive copper contact 57 therebetween. Lips 90 and 91 confine mixed contact assembly 85 which comprises a strip of ground braid material 92 (1/2-inch x 1/16-inch cross-section is suitable) and a copper strap 95 that is crimped around it to provide structural integrity. Strap 95 surrounds ground braid strip 92 to the same extent as lips 90 and 91, so that the inwardly facing portion between the lips is exposed ground braid material which engages contact 57. In use, ground braid strip 92 is wetted with a liquid metal such as a sodium/potassium eutectic (NaK-78). Operation is optimum with a small and precisely controlled clearance (e.g., 0.002 inches) between braid strip 92 and contact 57. This may be achieved by a break-in run that is carried out prior to wetting braid strip 92 with the liquid metal. The purpose of braid strip 92 is to hold the liquid metal in place and to alter its velocity characteristics so that it does not experience dynamic turbulent flow phenomena or migrate away from the surface of brush contact 57. While the use of ground braid material is a useful expedient, fixed contact assembly may utilize any construction that provides a finely convoluted surface. For example, screen material could be used.

Figure 5A and **Figure 5B** are exploded isometric views of shaft brushes 47 and 48. Turning first to **Figure 5A**, shaft brush 47 is of two-piece construction including an elongated rectangular bar member 100 (1-inch x 4-inch cross-section) and an abutting short member 102, members 100 and 102 having respective semicircular openings 105 and 107 along facing, abutting edges thereof. Thus, when brush members 100 and 102 are bolted together, as for example by bolts 110, they define a circular bore of a diameter corresponding to that of radially relieved shaft portions 68 and 69. The surface of the circular bore is recessed and houses a contact assembly 112 (which may comprise eutectic wetted braid) in the same manner as inner brush portion 82 houses contact assembly 85. If braid material is used, a 3/4-inch x 1/16-inch cross-section is suitable. Contact assembly 112 engages annular collar 70 to conduct current between shaft 15 and shaft brush 47. The outside dimensions of brush members 100 and 102 are not critical, but brush member 100 is preferably of sufficient length to extend outside casing 20.

Turning next to **Figure 5B**, shaft brush 48 includes cooperating brush members 120 and 125 which are generally the same as brush members 100 and 105 with the exception tht the semicircular bores do not extend all the way through, but rather terminate within the brush members. A contact assembly 127 engages annular collar 72.

Figure 5C is an isometric view of one of two identical support elements 130 for shaft brushes 47 and 48. Support element 130 is formed of insulative material and provides an electrically insulated mounting of the shaft brushes to housing 20. Support element 130 includes a rectangular channel section 131 for receiving and supporting a respective shaft brush and flange section 132 for mounting to housing 20.

Figure 6 is an isometric sectional view illustrating the construction of isolated shaft portion 40 and magnet brush 45. Magnet brush 45 is a cylindrical element of sintered copper-graphite or equivalent material. As described above, conductor 62 runs in an axial bore along shaft 15. The end of shaft 15 is formed with a cylindrical recess into which is epoxied an undersized metal cylinder 135 which is bored to receive an uninsulated metal cylinder 135 which is bored to receive an uninsulated end of magnet conductor 62. Isolated shaft portion 40 is a circular plate of the same diameter as the adjacent portion of shaft 15, an is soldered to cylinder 135 to form a mechanical and electrical coupling thereto.

Housing:

Figure 7 is a side oblique view, sectioned vertically along the axis of rotor 12, with the shaft and rotor shown only in phantom. **Figure 1** and **Figure 7**, taken together, show the construction of housing 20, bearing assemblies 17 and 18, and the mechanical support of the disk, shaft and magnet brushes. Housing 20 comprises a central rotor chamber 150 and axially outboard shaft brush chambers 152 and 153. Rotor chamber 150 includes a pair of end walls 155a and 155b, and pair of side panels 157a and 157b. Shaft brush chamber 152 includes a pair of side walls 160a and 160b, and an end panel 162, while shaft brush chamber 153 includes a pair of side walls 165a and 1665b, and an end panel 167. housing 20 further comprises a floor 170 and a roof 172. End walls 155a and 155b, side walls 160a and 160b, side walls 165a and 165b and floor 170 are preferably 1/2--inch stainless steel plate and are welded together to provide a rigid load-bearing assembly. Side panels 157a and 157b, end panels162 and 167 and roof 172 are of lighter material such as 1/8-inch stainless steel, and are bolted in place so as to be removable. Bolted connections are gasketed, using, for example, 1/8-inch thick cloth-impregnated butyl rubber gasketing material, chosen for its minimal outgassing characteristics. Disk brush halves 75a and 75b are supported between a lower brush support channel 175 and an upper brush support channel 177, both of which are fabricated from a fiber reinforced thermosetting plastic material. Lower brush support channel 177 is bolted to appropriate structural angle members, not shown. Shaft and bearing 27 is mounted to a housing extension 178 which carries a magnet brush support bracket 179. Magnet brush 45 is held in a cylindrical bore within an insulating brush support block 180, and is kept in contact with isolated shaft portion 40 by a spring 181.

Bearing assemblies 17 and 18 are mounted into, and supported by respective end walls 155a and 155b. Since the bearing assemblies are generally identical, only one will be described. Bearing assembly 17 includes a lightly preloaded duplex pair of angular contact ball bearings 180a and 180b mounted within a rectangular housing having a mounting flange 185 on three sides thereof. Suitable bearings may be obtained from Fafnir Company under the designation 2MM209 WI CR DUL. These are very high precision grade (ABEC-7) bearings characterized by a 1.7717-inch bore, a 3.3465-inch outer diameter, and a 1.4960-inch width. These bearings are able to run at 8000 rpm in grease under the loading imposed by rotor 12 and shaft 15. The bearings are held in place by opposed retaining plates 187a and 187b and a retaining collar 190. Shaft end bearing 27 may be a prehoused two-bolt flanged unit such as that obtainable from SKF under the designation FYTP-100. This is a bearing having a 1.000 inch bore and capable of operation at 8700 rpm in grease. Such a bearing has labyrinth seals which do not actually touch, thus avoiding problems of excessive wear and heating at high speeds.

Figure 8 is a partially cut away isometric view showing details of shaft seal assembly 21 which maintains a seal during operation when casing 20 is filled with slightly pressurized nitrogen. Shaft seal assembly 21 comprises an elastomeric seal 195 held in place within a shaft seal housing 196 by a retaining plate 197. A suitable elastomeric seal may be obtained from Johns-Mansville Company under the designation 10058LUP, which signifies a seal facbricated from buna-N material and characterized by a 2.0000-inch outer diameter, a 1.2500-inch bore, and a 0.3750-inch width. At the high angular velocity of operation, the elastomeric seal would rapidly wear away portions of the beryllium-copper material of shaft 15. Accordingly, shaft 15 is provided with a stainless sleeve 198, such as that obtainable from Chicago Rawhide under the designation 99125 Speedi-Sleeve. This is a sleeve characterized by a 1.250-inch bore, and a 0.010-inch wall thickness with a special outer finish designed expressly for efficient sealing action.

However, in order to fill housing 20 with pressurized nitrogen, the housing must first be evacuated and purged. Elastomeric seal 195 is incapable of maintaining a vacuum, so an o-ring sealing mechanism utilizing an axially movable gland 202 is provided. Moving gland 202, shown in its sealing position, has a frustoconical bore 205 adapted to engage a corresponding frustoconical portion 205 of shaft 15 (see also **Figure 3**). Movable gland 202 is grooved within its frustoconical bore to carry a first o-ring 210 for sealing to shaft 15, and is grooved on its face to carry a second o-ring 212 for sealing to shaft seal housing 197. After housing 20 is filled with nitrogen, gland 202 is moved away from shaft seal housing 197 so that o-ring 210 does not engage the shaft during operation.

Operation:

Having described the structure of the present invention, suitable operating parameters may be set forth by way of example. By way of background, for a machine of the type described, it is readily shown that the voltage, V, generated between the shaft and the outer circumference of the rotor core is given by the following equation:

$V = B w (r22 - r12) / 2$ (in mks units)

Where B is the magnetic field strength, w is the angular velocity of the rotor, r2 is the motor core radius, and r1 is the shaft radius. For rotation at 7200 rpm (754 radians per second), a 1-inch radius shaft, a 3-inch radius rotor core, and a magnetic field of 1.5 tesla, the voltage may be shown to be equal to approximately 2.9 volts. In order to render the pattern of output current relatively symmetrical within the device, it is preferred to couple the load to both disk brush halves and both shaft brushes. If two similar loads are used, one may be coupled between disk brush half 75a and shaft brush 48 (which protrude through the casing on the same side) and the other between disk brush half 75b and shaft brush 47.

Due to the brush design, the total internal resistance of the generator is in the neighborhood of 6-10 micro-ohms. Assuming that the machine is capable of dissipating no more than 2.25 kilowatts of internal heating, the maximum test load current is about 15 kiloamperes. At this current, the power output is 43.7 kiloamperes. However, the anticipated load current permissible for continuous operation may be more realistically in the neighborhood of as low as 8 kiloamperes, which corresponds to a power output of 23.3 kilowatts. As stated above, motor 25 may be any suitable prime move, and for the operating conditions described herein, should be capable of developing approximately 15 horsepower.

In view of the present invention and the operation of generator 10, the advantages of the configuration of rotor 12 may be understood. In particular, it will be noted that enclosure halves 37a and 37b cooperate with rotor core 55 to provide a low reluctance magnetic circuit. That is, energization of coils 32a and 32b causes magnet flux lines, denoted schematically by loops 220 in **Figure 3**, that are contained within a low reluctance magnet circuit comprising a substantially closed path of high permeability material. The only high reluctance portion is slot 66 which is kept as narrow as possible consistent with web portion 80 of brush halves 75a and 75b having sufficient mechanical strength and electrical conductance. With this configuration, a total excitation input power of approximately 150 watts is sufficient to produce a 1.5 tesla field in portion 30 of rotor core 55. The excessive consumption of power in producing a high magnetic field level is eliminated, making possible sustained operation at high levels of magnetic induction (and therefore of output voltage).

In summary, it can be seen that a generator according to the present invention is characterized by high efficiency and low magnet power requirements, achieved by the use of a rotor configuration having a low reluctance path. While the above provides a full and complete disclosure of the preferred embodiments of the invention, various modifications, alternate constructions, and equivalents may be employed without departing from the true spirit and scope of the invention. For example, housing 20 could be constructed with a cylindrical configuration to minimize the internal volume. Moreover, while a brush geometry that encircles the rotor and shaft is desirable, other configurations could be used. Therefore, the above description and illustration should not be construed as limiting the scope of the invention which is defined by the appended claims.

Claims [Not included here]

Figure 1: Sectioned Isometric View of Homopolar Generator
10 = Homopolar Generator; 12 = Rotor; 15 = Shaft; 17, 18 = Bearing Assemblies; 20 = Casing; 21 = Shaft Seal Assembly; 22 = Sheave Drive; 25 = Drive Motor; 27 = Shaft End bearing; 30 = Central Disk Conductor; 32A, 32B = Electromagnet Coils; 37A, 37B = Flux return Enclosure; 40 = Electrically Isolated Shaft portion; 42 = magnet Excitation Power Supply; 45 = Magnet Brush; 47, 47 = Shaft Brushes; 50 = Disk Brush

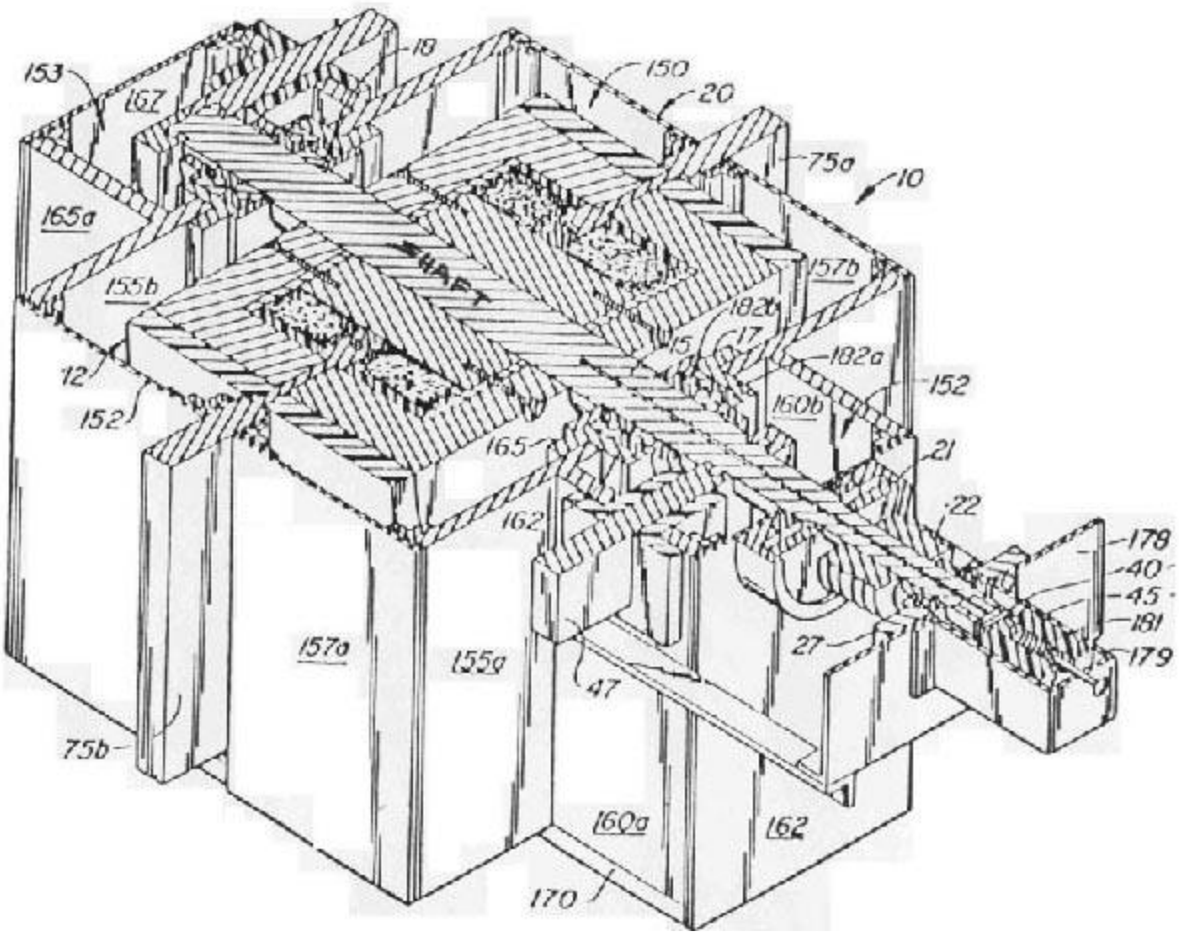


Figure 2: Eelctrical/Mechanical Schematic View of the Homopolar Generator

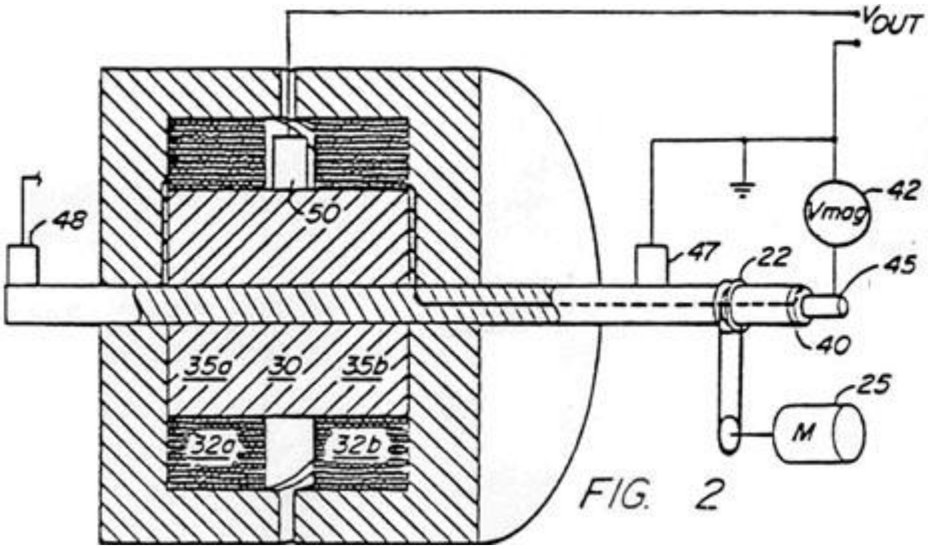


FIG. 2

Figure 3: Sectioned Oblique View of the Rotor & Shaft

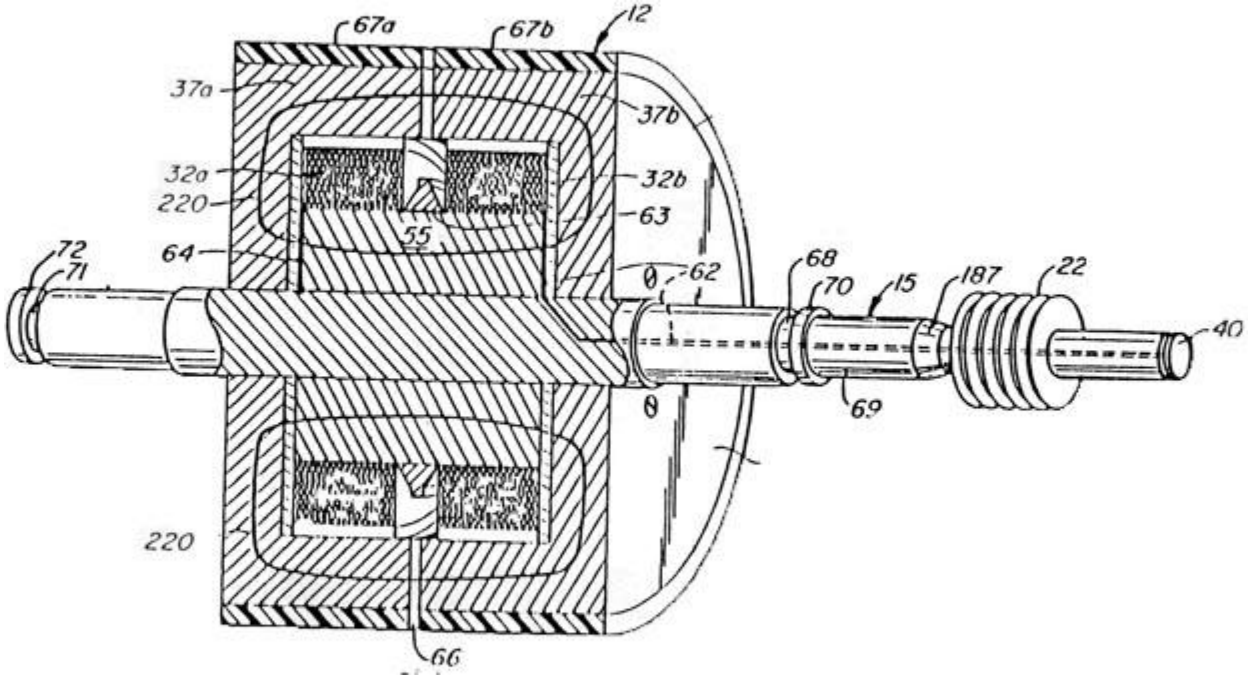


Figure 4A: Isometric View showing the construction of the Disk Brush

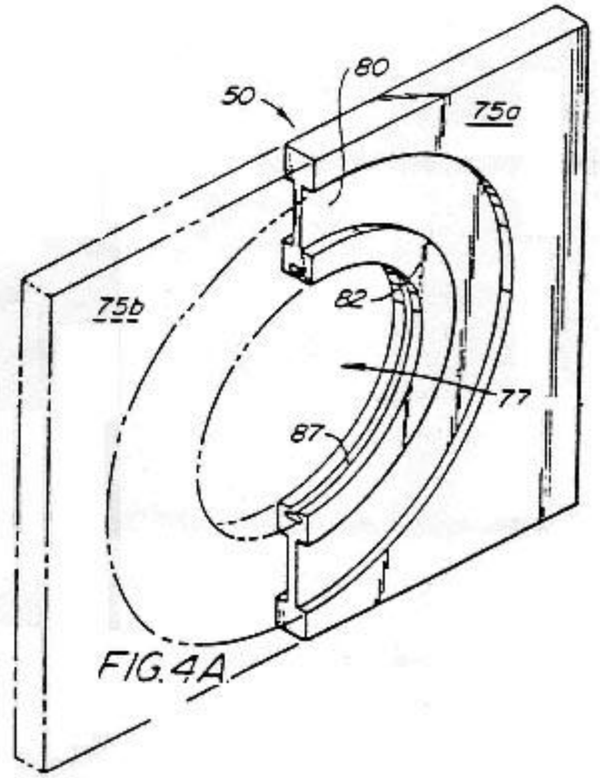


FIG. 4A

Figure 4B: Fragmetary Enlarged View showing a portion of the Disk Brush

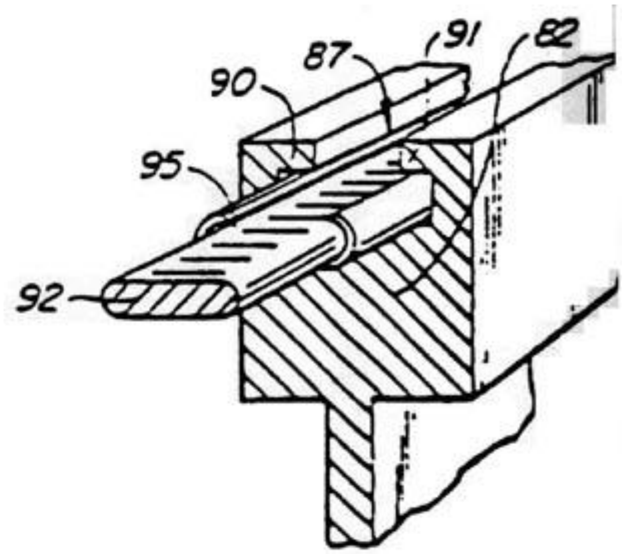


Figure 5A: Exploded Isometric View of the Shaft Brushes

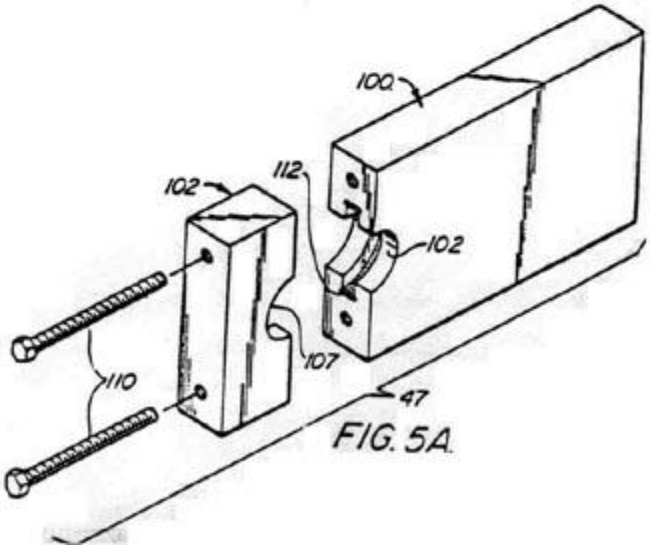


FIG. 5A.

Figure 5B: Exploded Isometric View of the Shaft Brushes

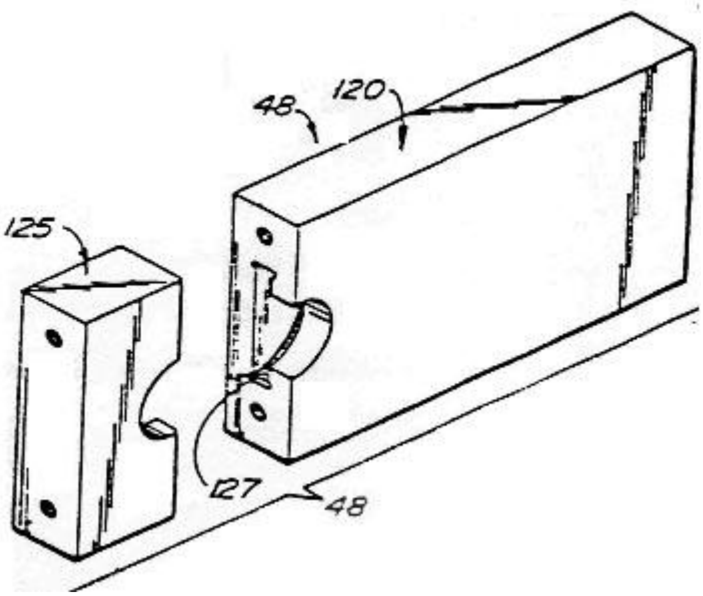


Figure 5C: Isometric View of a Shaft Brush Support

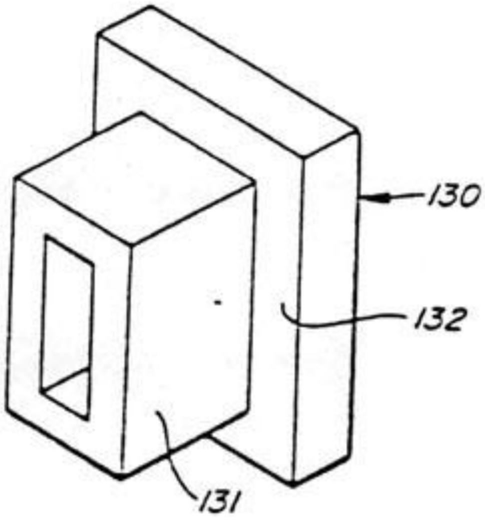


Figure 6: Sectioned Isometric View of the Magnet Brush

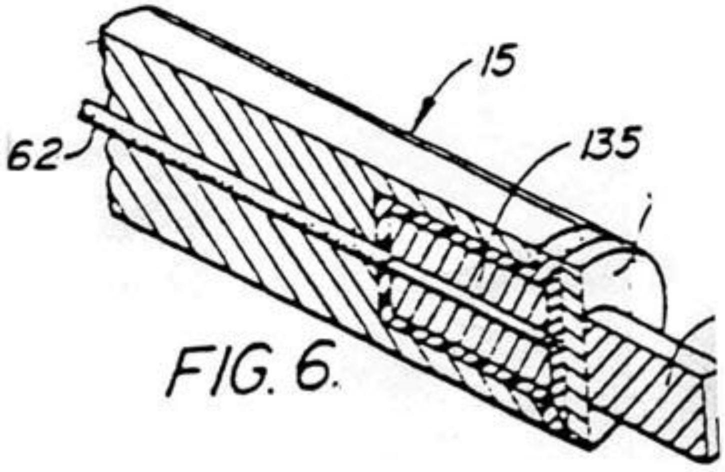


FIG. 6.

Figure 7: Sectioned Oblique View showing the Brushes, Bearings, & Casing, with the Rotor shown in phantom

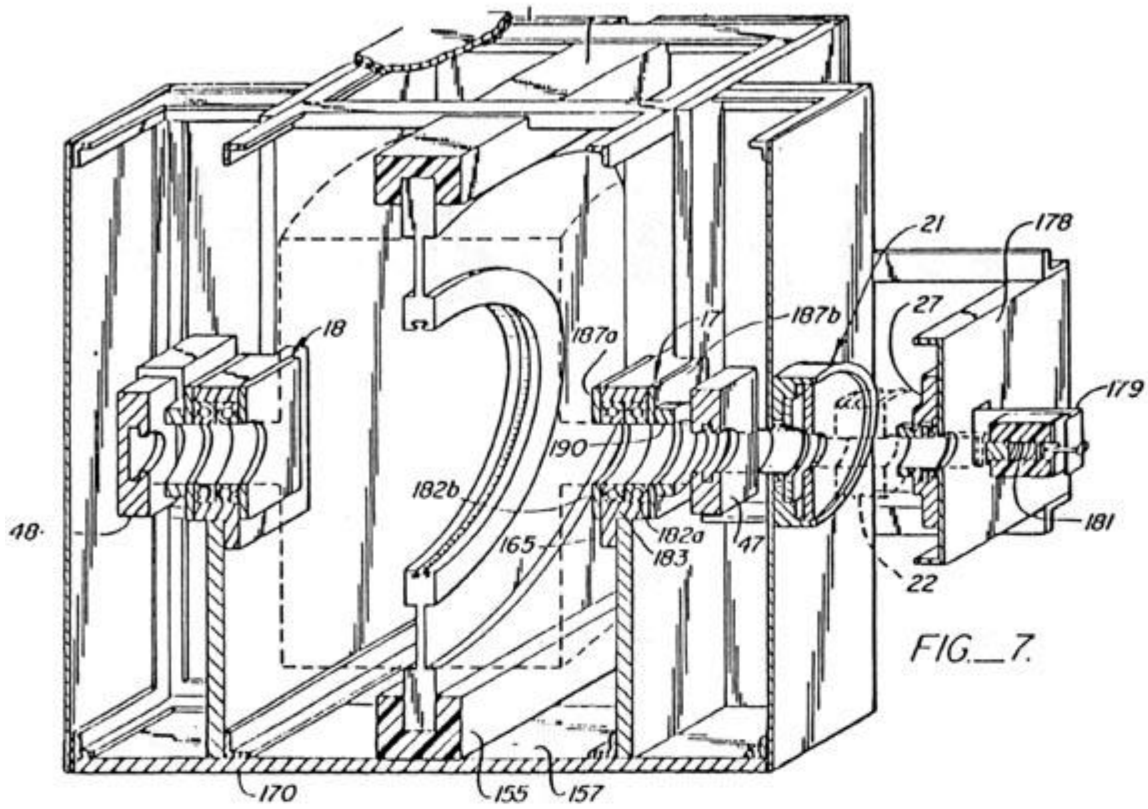


FIG._7.

Figure 8: Sectioned Isometric View of the Shaft End Seal

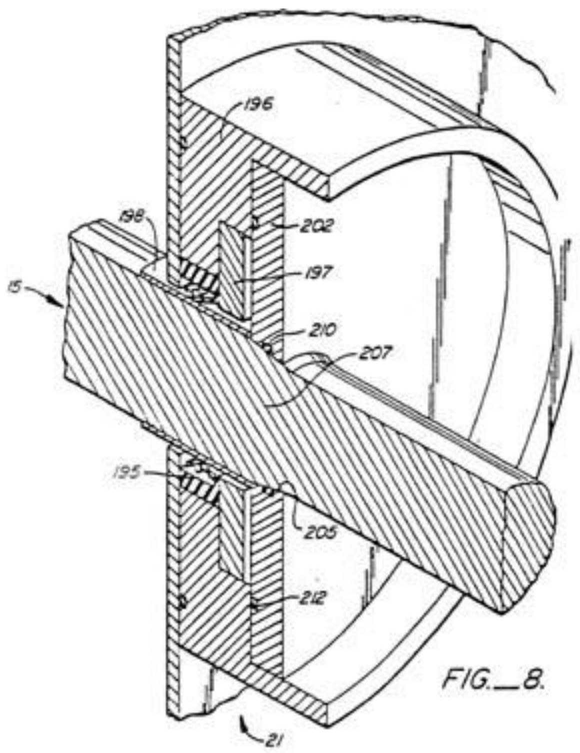


FIG._8.

Lawrence TSEUNG, *et al.*

Leading Out Theory

www.zpenergy.org
January 24, 2007

China -A New Entry in the Magnetic Conversion of Zero Point Energy Has Surfaced!

The Wang Shum Ho Prototype Electricity Generator was reportedly demonstrated to five Chinese Officials on Jan 15, 2007.

Lawrence Tseung, a colleague of the inventor, has said the plan is to initially build four 5kW working units. One of these will be located in Beijing, another in Hong Kong and the third one at the United Nations in New York The fourth unit is to serve as a portable demonstration device. All will be made available to universities for academic validation.

Then, 200 more will be produced. They intend to present one of these to each member country of the United Nations, as a gift from China. Mass production may begin in 2008.

Tseung has written: "Devices of this nature are converting the electromagnetic wave energy that surrounds us all the time. Some call this Zero Point Energy. That energy is due to the rotational motion of the electrons. Unless the electrons stop spinning and fall into the nucleus, that electromagnetic energy exists."

Tseung states: "The World Energy Crisis is effectively over."

TSEUNG Lawrence Chun Ning
Email: ltseung@hotmail.com

"We are actually immersed in electromagnetic waves. When electrons rotating around the nucleus change orbits, they give rise to electromagnetic waves. Light is only one form of electromagnetic waves. We emit and receive electromagnetic waves all the time. Unless the electrons stop rotating and fall into the nuclei, there will be electromagnetic waves. Thus we are never in a CLOSED system. We are always in an OPEN system with energy interchanges. For example, we were in calm waters and good sunshine. If we did not know how to use solar panels, we might conclude that we were in a CLOSED system. We should use our muscle power to row the boat. The Lee-Tseung Patent information (PCT/IB2005/000138) states that Energy can be extracted (Lead Out, Lead Out, and Lead Out with Pulse Force) from Energy Fields via oscillation, vibration, rotation or flux changes. Energy Fields can be gravitational, magnetic, electric or electromagnetic."

See also:

http://www.youtube.com/user/ltseung888
http://www.youtube.com/watch?v=gxnHJoyrQpM

Energy can be extracted from a falling weight which reloads itself in a waterfilled tube. Weight with density 0.6 drops down to generate electricity. Floats up via two doors to trap water in tube.

---

http://www.steorn.net/forum/comments.php?DiscussionID=24003&page=1#Item_0

Author ltseung888
Comment Time Sep 16th 2006

If you had followed the various threads or read the information from the main website (http://www.energyfromair.com), you might have learned that we already signed a contract with a Chinese Government Concern. The contract essentially says that if our prototypes passed the certification process at Tsing Hua University, we could lay our hands on RMB$300 million (US$33m)development funds. (http://www.energyfromair.com/beijing/lettertseung.doc)

We intend to benefit the entire world. The main Patent Holding Company in China will be 51% owned by the Chinese People and Government. There will be a subsidary patent holding company in every country which will be 51% owned by its People. The Cosmic Energy Products sold in country A will pay royalty to the patent holding company in country A. Thus every country and citizen will benefit.

There will be product companies that will be licensed to produce specific products. These products have not been announced yet as the types of products are in the thousands. It is possible for you and your group to participate in the licensing of producing these products. However, we are in no hurry to enter into a deal as almost all our prototypes are not ready to be sold as a product. In addition, if we sell a product as an electricity generator, we have to pass a 6 month no failure test in China.

However, we are interested in World Publicity right now. Discussion of a license and an offer will stimulate additional interest. Whether the deal actually materialize is not that important to me at present. Lee Cheung Kin, myself and the key inventors (60 in China) are almost guaranteed to be multi-millionaires already.

A wise Chinese Monk in Taiwan told me - just think about contributing to the World. Ignore your personal fame, wealth, ego, etc. The venture will succeed. Angels will come down to help you.

---

http://www.google.com.hk/search?hl=zh-TW&q=Lawrence+Tseung&btnG=Google+%E6%90%9C%E5%B0%8B&meta=

(1) Participant at Hong Kong Government Forum
(2) Cosmic Energy
(3) Guaranteed Reliable Broadcast Network (together with Dr. Yu at MIT)

Holder of two US patents:

5,109,384 Guaranteed reliable broadcast network
5,036,518 Guaranteed reliable broadcast network

Cosmic Energy Plan

by

Lawrence Tseung

(Jan 18, 2007)

(1) The Theory is now completed. The emphasis is on - all objects are immersed in Electromagnetic Waves. They are interchanging EM with surroundings constantly. They are not in closed energy systems. The analogy is - boat in calm water and good sunshine. This theory

will be circulated to all Universities, Colleges and other Academic Institutions. Some top physicists will take it up and publish it in top scientific journals. Textbooks will be re-written.

(2) My focus will be on the Patent Information. The promoting of the Lead Out concept will continue. Energy can be extracted (Lead Out, Lead Out and Lead Out with Pulse) from Energy Fields via Oscillation, Vibration, Rotation or Flux Changes. Energy Fields include gravity, magnetic, electric, electromagnetic fields. Energy from Still Air is an indirect way of using Gravitational Energy. The Patent Offices around the World will have no choice but change their policy on Perpetual Motion Machines and the use of the Law of Conservation of Energy as the Roadblock to inventions.

(3) The Experimental prototypes that can be implemented readily include the Energy From Air systems, the simple Gravity Wheel (Bessler Wheel), the Wang Shum Ho Wheel, the Steorn Toy and the Pulse Machine. The details will be fully published. They are the spearhead of the Cosmic Energy Development but are very primitive from the theoretical point of view. They will have very short commercial success even if introduced into the Market Place. Steorn has generously announced their licensing plans. We shall follow that generosity to benefit the entire Human Race.

(4) The Wang Shum Ho 5KW Electricity Generator has been assembled and demonstrated in front of 5 Chinese Officials. The chance of having 4 prototypes ready for academic tests; 200 as gifts to every nation and then producing products (including a DIY version) is good. The product is likely to be introduced via the United Nations. Even the most undeveloped Country will have working products to learn from and to adopt the technology. We shall ensure that multiple groups can produce the device. We would like to introduce the concept of Mutual Credits to ensure an orderly creation and distribution of this technology and the generated new wealth.

(5) The further technical developments include the Flying Saucer, the non-rotating 4th generation machines and the 5th generation IC machines. This is likely to include an International Alternative Energy Conference chaired by Steorn after their successful validation. They already have a group of top scientists from different parts of the World validating their device. Hopefully, the Conference will be an International Cooperation Event. We are confident that the 6th, 7th generation machines will come out in the foreseeable future. The World Energy Crisis is effectively over.

(6) There will be development of Model Farms, Model Villages, Model Cites, etc. Multiple Models will be built. This will greatly speed up the development of less wealthy Countries. Cities in the sky or cities under the sea will no longer be fiction. People will have Flying Saucers as personal transport complete with office, communication, health, entertainment devices, etc. Country borders will be blurred. Central authority would be replaced by Central guidance.

(7) Like it or not, there will be military development of this technology. With this technology, the troops would never run out of fuel, food, ammunition, etc. They can fly anywhere including outer space. All existing planes, missiles, submarines, tanks will be obsolete. We hope to make all these developments open so that no single Nation can dominate. If there is military balance and fear of retaliation resulting in destruction of Planet Earth, there might be less temptation to

start wars. This technology will allow a small nation to have vast destructive powers. The possibility of the Doomsday Bomb with matter and anti-matter would be obvious to any physicist.

(8) We shall openly discuss and promote the new order. Nationalism will slowly be replaced by Internationalism. The less developed Countries will catch up quickly as copying is always faster than inventing. There will be enormous new wealth generated especially if concepts such as Mutual Credits and Meaningful Economic Activities are adopted. Such new wealth will be available to and will benefit all. There is no need to rob other Nation’s land, oil or resources. Competition will be friendly and non-destructive.

The end for now.

Lawrence Tseung

As we discussed previously, the overall situation is as follows:

(1) The Chinese Government will NOT allow the development of military products by a Commercial Company in China. They will do it themselves with no information revealed to the General Public. (I believe almost all Countries have similar policy.)

(2) However, they are aware of the theory, the patents and the prototypes from us. They also bought some EBM units from Hungary. This means some decision makers are willing to risk some money and time to seriously investigate these Over Unity Devices. We believe we may be able to develop non-military products with their blessing.

(3) As in all Countries, not all Officials are of one mind. Some Officials in China are still doubtful. One who sat on and drove the Dr. Liang car said to me, "I cannot get myself to believe this Over Unity Device. Energy must come from somewhere. It cannot be created nor destroyed." I tried to explain our theory from the simple pendulum with the pulse force. He said, "I know how a pendulum works. All the energy comes from your push. That is a fact. I want no more of this nonsense."

(4) While the Chinese Officials are in the debate, we charge ahead with the limited resource we have. This forum helped me to consolidate my ideas and presentations. If I had thought of the boat in calm waters and good sunshine when I was talking to that Official, the outcome might have been different.

(5) I found that the most convincing presentation is to start with the boat in calm waters and good sunshine. Thus my updated presentation has it. See http://www.energyfromair.com/beijing/taiwan2a.htm

Lawrence Tseung

This patent is not apparently related to the ZPE Converter...

WO 2006/077451

Lawrence TSEUNG; Cheung LEE

Extracting Energy from Gravity

(2006-07-27)

Classification: - international: H02N11/00; H02N11/00;- European: H02K53/00
Application number: WO2005IB00138 20050120
Priority number(s): WO2005IB00138 20050120

Abstract --- The invention extracts energy from gravity based on the corrected theory of the pendulum. When the pendulum is pushed, it will ‘lead out’ gravitational energy at the same time. If a source of pulse force (F) is applied to the pendulum at resonance, it will keep ‘lead out gravitational energy. This gravitational energy can be extracted by techniques such as allowing the metallic wired pendulum to cut across the lines of magnetic force to generate electricity. The swinging motion of the pendulum will be slowed down because the mechanical energy is converted to electrical energy. However, such slowing down is speed up via pulse force (F). The swinging motion can be changed into a constant rotational motion for more efficient operation.

Fig. 1

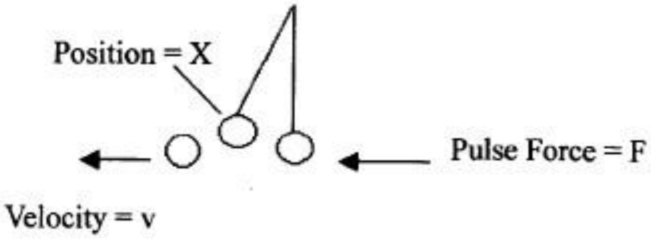
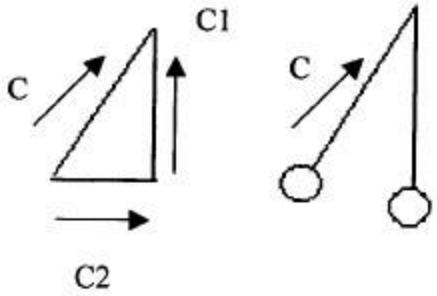


Fig. 2



1. Technical Field

This invention is related to the extraction of energy from gravity. Such energy is virtually limitless and is available everywhere including on the moon.

2. Background Art

Mankind has played with the swing for centuries. They do not realize that when they push the swing, they get Energy from Gravity at the same time. Many people, especially little boys, have deliberately allowed the swing (or the punch bag) to knock them after pushing the swing a couple of times. They all suspected that the force knocking them was much more than the energy they supplied in the couple of pushes.

However, the existing textbooks do not consider the Energy from Gravity term and attribute the force to resonance only. They assume that all the energy must come from the couple of pushes. This misunderstanding has prevented scientists and engineers to design methods or devices that

Extract Energy from Gravity for centuries. However, they did not have the theoretical basis to justify their inventions. Many of these inventions were classified as impossible perpetual motion machines and were rejected by scientists and many Patent Offices worldwide.

3. Disclosure of Invention

The theoretical breakthrough needed is the understanding and the deriving of the underlying formulae related to the swing or the pendulum systems.

The steps involved in extracting Energy from Gravity are:

1. Push the pendulum with a Pulse Force at resonance.

2. The swinging of the pendulum will 'lead out' the Gravitational Force.

3. Some of the commercially available swinging toys already use an integrated circuit to provide the Pulse Force. The swinging toys can use batteries or photoelectric cells.

4. If the string of the swinging toy or pendulum is replaced by a copper wire and placed between two magnets, the copper wire will cut the magnetic lines of force and generate electricity. The swinging motion will be slowed down --- kinetic energy turning into electrical energy.

5. If the swinging motion is speeded up again via the pulse force, we can repeat step 4 and get a primitive Electricity Generator that extracts energy from Gravity.

Mathematics behind Extracting Energy from Gravity

Let us consider the situation of a ball suspended by a string (pendulum) in Figure 1. In Figure 1, a small 'pulse force' F is applied to the ball (mass – M) with a displacement d.

The physical laws demand that there should be an acceleration equal to A where F = MA. The energy imparted will be equal to Force multiplied by Displacement (Fd). The final velocity acquired should be v (where v is determined by the energy equation Fd = 1/2 Mv^2). If there were no string, no friction, no gravity, no air resistance, etc., the ball should acquire the velocity v and continue along a straight line forever.

With the presence of the string and Gravity, the ball acquires the position X in Figure 1.

In Figure 2, we view the situation using the concept of circular motion. The ball is moved up and to the left because of the centripetal force C. We can treat the centripetal force C as made up of two components:

1. Component C1 is the vertical direction. It acts against gravity and lifts the ball upwards. Work is done and energy is spent.

2. Component C2 is in the horizontal direction opposite to the motion of the ball. It acts on the ball and slows it down until the velocity is zero. Work is done and energy is spent.

C1 can be thought of as contributing to the work done by the string to lift the ball against gravity. In other words, this energy is the non-obvious Energy from Gravity. Once we start or push the pendulum, work will be done against gravity by the string. This energy must be conserved.

Here are effectively two energy components acting on the system. One is the pulse energy supplied to start or maintain motion. The other is the energy supplied by the string to lift the ball against gravity! This means we ‘lead’ the gravitational energy into the system when we push or swing the pendulum!

The correct energy relationship of the pendulum (assume no energy loss) should be:

Energy In = Energy Out
Energy In = Energy from Pulse + Energy from Gravity
Energy Out = Potential Energy (MGH) + Kinetic Energy (1/2 Mv^2)

Previously, scientists did not take into account the Energy from gravity term and thought that all the energy must come from Energy from Pulse! Thus they did not tell the engineers to design systems to extract Energy from Gravity directly. The above simple theoretical correction will lead to many devices that extract Energy from Gravity directly. We shall disclose 3 sample embodiments in this application. Dozens ore more along the same line are possible.

Embodiment 1: Use of the Simple Pendulum

Use a copper wire to suspend the pendulum. Put the pendulum in between two magnets and let the swinging motion cut the magnetic field. Use the generated electricity to do work and to supply the periodic horizontal pulse energy. This is the simplest and the most obvious solution. However, the electrical current generated will vary from zero to a certain maximum and will change direction. Sophisticated integrated circuit control is needed to provide a smooth, practical electricity generator. If the purpose is just to demonstrate the principle such as lighting a light bulb, it may be good enough.

Embodiment 2: Use a Constant Speed Rotating Wheel

Conceptually, we can spring the pendulum in a complete circle without violating the theory. In pracice, we replace the pendulum with metallic rods arranged in the form of a wheel. The generating of electric current will slow down the motion of the rotating wheel but the pulse circuits will ‘lead out’ additional gravitation l energy to accelerate the motion. If properly controlled, the rotational speed can be kept constant and the generation of Electric Current will be steady and in one direction only. This effectively is a Direct Current Electricity Generator. The secret of success lies in the positioning and control of the various magnets or pulse circuits. The energy extracted from gravity per revolution can be as much as 2MGR where R is the length of the pendulum string (or radius of the wheel in this embodiment). This value may be less if some of the pulse circuits supply the vertical force/energy. However, so long as gravitational energy enters into the system, we get free Energy from Gravity.

Embodiment 3: Use of Water in a Double Wheel

We can also use water in a vertical spinning double wheel to extract Energy from Gravity. If there were no gravity, the water should be uniformly distributed at the outer side of the wheel. However, because of gravity, the distribution of water will not be uniform. There will be a wider path at the up moving side and a narrower path at the down moving side (This is because water travels slower on the up moving side because of gravity). We can use a central shaft with fins to extract energy from the up moving water or we can use an off center shaft with fins to extract energy from the down moving water.

4. Brief Description of Drawings

Figure 1 shows the operation of the simple pendulum. A short duration Pulse Force F is applied to push the ball (Mass = M) for a short distance d. If there were no string, no air resistance and no gravity, the ball should accelerate with acceleration A (F = MA) until a velocity v (Fd = 1/2 Mc^2) is reached. The ball should then move along a straight line with velocity v forever according to Newton's Laws of Motion. However, with the presence of the string and gravity, the ball moves to position X.

Figure 2 shows the resolution of the Centripetal Force C into two components C1 and C2. C1 lifts the ball up against gravity and does work. The resulting energy goes into the pendulum system. This is the Energy from Gravity. C2 is in the opposite direction of the pulse force F and does work in slowing the ball from velocity v to zero. C1 can be much greater than C2 as judged by the parallelogram of forces. This means that if we want to get more Energy from Gravity, we should apply small but more often the Pulse Force F.

5. Best Modes of Carrying Out the Invention

The best mode of carrying out the invention is embodiment 2 (use of a constant speed rotating wheel) as described in Section 3. If the invention were used to generate electricity only, we can draw electrical energy out directly by placing the rotating wheel in a magnetic field. The rotating mechanical energy will be converted into electrical energy directly. The rotating speed will decrease but the pulse circuits will 'lead out' more gravitational energy to replenish the speed. If more electricity is required, we can increase the rotating speed or increase the number of pulses per revolution.

6. Prior Art or Patents

We are aware that many scientists are working in the energy field. Some of them are also using Energy from gravity. One known patent from China is 02113293.3 granted on August 13, 2003. This patent uses the vibration energy when a vehicle travels over an uneven ground to generate electricity. It can supplement or recover some of the lost energy from an electric car but cannot be the prime source of its energy. Our theory can be applied to swinging resonance systems as well as to vibrating resonance systems. Our invention is superior because we can be the prime source of energy of the electric car.

Another known patent from Chine is 01123526.8 granted on March 5, 2003. This patent uses a rotating cylinder and extracts the gravitational energy from the central shaft to drive a car. It describes one very good mode of operation (Thus we leave out this mode of operation --- the use of the central shaft in our claims). However, the inventor did not fully understand the theory. In his marketing literature, he explained his understanding of the phenomenon using a mixture of Chinese philosophy, Western science, and mysterious cosmic forces. He did not realize that the theory was a simple ‘leading out’ of the gravitational force from the swinging motion of a pendulum.

In our explanation of the corrected theory of the pendulum, we have effectively removed the mysterious source of energy in the prior art. The same theory can be used to explain the extraction of energy from magnetic fields, etc.

Cosmic Energy Electricity Generators

China Venture Capital Forum 2006

by

Lawrence TSEUNG

The World Energy Crisis is over. Oil is no longer a strategic resource. There is no need to go to war over it.

Modern Wealth is the quality and quantity of Meaningful Economic Activities. Such Activities can be infinite.

Ignorance and poverty will be history.

Contact: Mr. Stephen Chan (852) 9184 4277

China Venture Capital Research Institute (Hong Kong) for Investment Details.

Title:

Introduction to Cosmic Energy Machines

by

Lawrence C. N. TSEUNG

For: China Venture Capital Forum 2006

Contents:

1. Open Letter to the Chinese Government

2. The Development History of the Cosmic Energy Inventions

3. The Indirect use of Gravitational Energy (Still Air etc.)

4. The Direct use of Gravitational and Magnetic Energy

4.1 First Generation (Extract Energy via cutting Earth¡¦s Magnetic Field)

4,2 Second Generation (Extract Energy from Gravity)

4,3 Third Generation (Use of Intelligent Chips)

4.4 Fourth Generation (Extract Energy via Change of Magnetic Flux)

4.5 Fifth Generation (Improving the Third Generation over 100 times)

5. Summary

1. Open Letter to the Chinese Government*

Dear Sirs,

I have done a great deal of research into the field of Cosmic Energies and I am convinced that their use will solve the Energy Crisis. Cosmic Energies include air, water, gravitational, magnetic, electric fields and others. Such energy sources are non-polluting, abundant and inexpensive.

I, together with Mr. Lee Cheung Kin and others, have applied for Patents in this field. For example, the PCT patent application (PCT/IB05/00138) titled "Extracting Energy from Gravity" and the equivalent China Patent Application passed the preliminary examinations. Some experiments that can be performed by the average secondary school student are ready. These experiments conclusively demonstrate that we can extract energy from the pendulum systems. Some Chinese Inventors developed working cosmic energy machine models before our theory was out. Unfortunately, without the solid, theoretical explanations, many working inventions were classified as impossible perpetual motion machines. These should be rescued. With the right resources and proper development, China can solve the World Energy Crisis, solve the poverty problem of its Farmers, generate phenomenal Modern Wealth and lead the World into the Wisdom Society.

The difficulties we are facing include objections from established interests, lack of Government support, lack of funds and resources. There are disputes amongst the researchers on when would be the proper time to inform the Government and the General Public. As requested, I am presenting my personal opinion here.

Lawrence Tseung in Hong Kong

March 18, 2006

2. The Development History of the Cosmic Energy Inventions

My development started from an experiment on Fluid Mechanics in May 2004 at the Tai Po office of Mr. Peter Chan. Mr. Henry Ku and I were performing an experiment to compare the characteristics of water under push and pull conditions. Some air accidentally leaked into the apparatus. Water and air bubbles spurted out from the testing tubes for over 20 minutes. It was obvious to us that such an effect could not be attributed to the difference in density columns alone. We then started the research on the characteristics of air and water column mixtures.

Mr. Peter Chan introduced us to his friend Mr. Kwan who wrote a book on Perpetual Motion Machines. In the book, Mr. Kwan described a pump as a proof. I read the book cover to cover 7 times and concluded that the most valuable statement in the whole book was: ¡§The resulting water contained much oxygen and is suitable for fish farming. The pump was not a Perpetual Motion Machine but a device that used the Energy from Still Air similar to the Ku experiment mentioned above.

I worked out the formula to explain the process. Air is not a fuel but an energy carrier. The energy carried by air into a system can be different from the energy carried out by air from the system. The formula is

Energy carried In by air = Pressure In x Volume In

Energy carried Out by air = Pressure Out x Volume Out

The difference can be used to generate electricity.

I then used two simple beach pumps and some one-way valves to demonstrate the theory. My friends, the Cheungs, set up the demonstration system at Tai Po. Mr. Lee Cheung Kin, a retired engineer with missile training from China saw the demonstration and agreed with the theory. Mr. Lee also mentioned a car from Dr. Liang that required no fuel and obtained a video (included on the CD) and the marketing literature. In the marketing literature, Dr. Liang used a mixture of Chinese philosophy of Yin-Yang and Western Ideas to explain why the car required no fuel.

Mr. Lee and I laughed at the explanation and decided to seek new explanations. The next morning, Mr. Lee woke me up at 7:30am from the Hotel and asked me to rush over. Mr. Lee showed me a pendulum toy and his theory. (That early theory was later corrected.). Mr. Lee also introduced Professor Woo, a retired scientist who helped to develop the first Chinese Atomic Bomb. Professor Woo met Dr. Liang personally and was confident that the car did work. We then seek the help of the Hong Kong Invention Association and had the first Press Announcement on Dec 20, 2004 at Tai Po.

The night before the Press Announcement, a Chinese Foreign Trade Official, Mr. Au Yang, showed a CD from another Inventor, Mr. Sung Tim Fat. Mr. Sung provided an early version of his Invention to Dr. Liang. The invention was an electricity generator that required no fuel. Mr. Sung thought that the energy came from the permanent magnets. He could not explain why that creation or replenishing the magnets used x units of energy. The machine could then generate much more than x units of energy.

It was clear to me that the above inventors did not have a correct theory. I continued to work on the theory. The theory was expanded from Oscillation Systems to Rotational Systems; from Gravitational to Magnetic Fields; from Rotations to Vibrations; from Vibrations to Flux Changes etc. The latest is the fifth generation.

Another major theoretical breakthrough is on the understanding of magnetism. I can now explain why that a permanent magnet can help to generate much more energy than that to create it. Magnetic field is caused by the motion of electrons. The permanent magnet is not the source of energy. It induces changes in the motion of the electrons ¡V changing their orbits and hence energy levels. There can be energy exchanges with the surroundings. The energy comes from rearrangement of the orbits of the electrons and exchanges with the surrounding such as light, heat, etc. There is also evidence that magnetic fields can affect the half-life of some radioactive elements. This means nuclear forces may even be possible.

I asked a 13 year old student, Miss Wini Woo to help me with the PowerPoint file. Miss Woo did a great job and also informed me that she could produce a flying machine using the theory of equivalent gravitational constant described. (That will be the subject of another report.)

Mr. Raymond Ting joined us in January 2006. Within a few weeks, he completed many demonstration experiments on the Woo flying machine. To his credit, he also designed simple experiments on the pendulum systems that conclusively demonstrated that pulse forces could ¡§lead out¡¨ gravitational energy.

My plan is to inform the Central Chinese Government as quickly as possible.

3. The Indirect use of Gravitational Energy (Still Air etc.)*

The first demonstrable use of Energy from Still Air from me was in June 2004. I applied for the PCT patent in July. The theory is as follows:

1. Air can be bought into the System carrying in energy E_in

2. Air can be carried from the System carrying out energy E_out

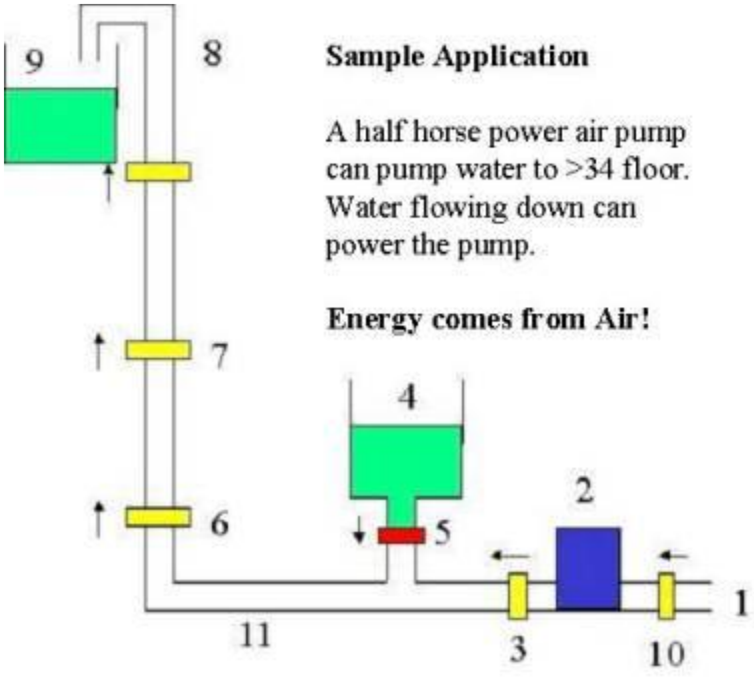
3. Energy E_in can be greater than Energy E_out

4. The difference is Energy supplied by Air

5. The carried out Air can expand and absorb energy back from the atmosphere causing global cooling (reversing the effect of global warming).

The practical demonstration of the invention is shown in figure 3.1

Figure 3.1 Sample Application of Energy from Still Air


9
8
7
6
4
5
2
1
11
3
10
Sample Application
A half horse power air pump can pump water to >34 floor. Water flowing down can power the pump.
Energy comes from Air!

In Figure 3.1, 2 shows a HK$300 electric air pump; 4 is the lower water tank; 9 is the upper water tank; 3,5,6,7,8,10 are one-way valves. The water and air mixture is sent to the upper water tank 9. The mixture is separated. The total energy input is that from the air pump + energy from air E_in . Many engineers and scientists previously ignored E_in . Professor Woo and many members of the Chinese Academy of Science accepted this correction.

The next invention was the ¡§Lightning in a Box¡¨ by Mr. Chan, Mr. Kwok and Mr. Bill Fong. The invention uses the energy of the ions and/or electrostatic charges in the air. As we all know, lightning has much energy. Lightning is caused by the meeting of two clouds ¡V one carrying positive charge, the other carrying negative charge or via their finding a path to discharge via the Earth. The invention uses such energy and is shown in Figure 3.2 and Figure 3.3

Figure 3.2 Invention Flow Diagram

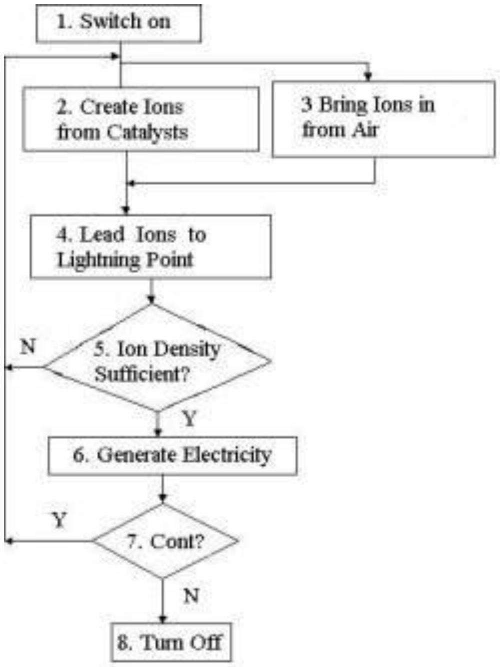
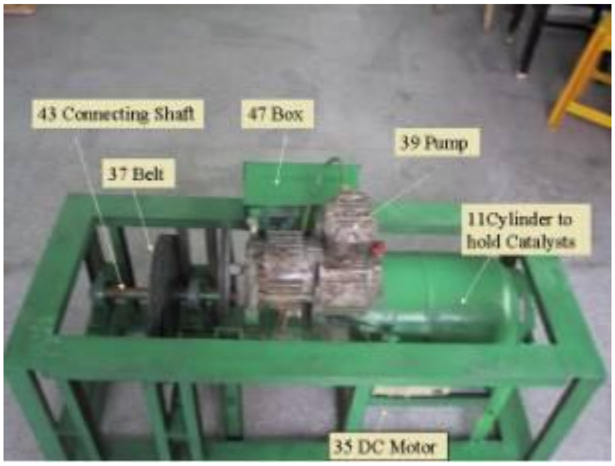

1. Switch on
2. Create Ions from Catalysts
3 Bring Ions in from Air
4. Lead Ions to Lightning Point
N
5. Ion Density Sufficient?
Y
6. Generate Electricity
Y
7. Cont?
N
8. Turn Off

Figure 3.3 Invention Diagram



The above invention was first demonstrated in April 2005 in Shenzhen. Many improved versions have been developed. The latest models are ready for production. The inventors are seeking Venture Capital.

Other inventions include the use of floatation. One technique allows an object of density 0.6 to drop down to generate electricity and then float back up a tube with two control doors at the top and bottom (video available on the CD - AVSEQ03.DAT). Another technique allows hollow balls to float up and turn a vertical chain with flaps to generate electricity.

4.0 The Direct use of Gravitational and Magnetic Energy

Previously, scientists did not realize that they could continuously extract Energy from Gravity. In particular, they did not realize that the swing or the pendulum system could lead out Gravitational Energy. The mathematics is based on the Parallelogram of Forces studied in Physics by every secondary school student.

The basic steps in Extracting Energy from Gravity are:

1. Push the Pendulum with pulse forces at the right time (more scientifically, at resonance)

2. The Pendulum System will lead out gravitational energy due to such pulse forces.

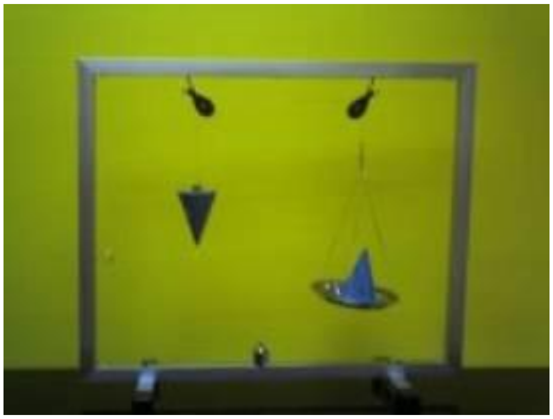
3. Many commercial swinging toys already use such pulse force mechanisms. Many of these toys use Integrated Circuit or Intelligent Chip techniques.

4. If the swinging arm of such a toy were replaced by a copper wire and the copper wire were placed in between the two poles of a permanent magnet, the swinging motion will generate electricity.

5. The swinging motion would slow down as the kinetic energy was converted into electrical energy. However, the pulse force and the ¡§led out¡¨ additional gravitational force would accelerate it again.

The pendulum system with pulse force mechanism can thus ¡§lead out¡¨ gravitational energy and become the most primitive form of Energy from Gravity Machines. The experiments designed by Mr. Raymond Ting illustrated this concept conclusively. Figures 4.1 and 4.2 show the details.

Figure 4.1 shows a pendulum system.



The pendulum is first balanced by a weight of 367 gms. There was no motion. A Pulse Force of 50 gms was then added. The pendulum went up with an increase in Potential Energy of 367xH.

However, the Energy supplied by the 50gms ¡§Pulse Force¡¨ was only 50xH.

(One Time Lead Out of more Energy)

Previously, scientists did not realize that they could continuously extract Energy from Gravity. In particular, they did not realize that the swing or the pendulum system could lead out Gravitational Energy. The mathematics turned out to be very simple and should have been derivable by every secondary school student.

The basic steps in Extracting Energy from Gravity are:

1. Push the Pendulum with pulse forces at the right time (more scientifically, at resonance)

2. The Pendulum System will ¡§lead out¡¨ gravitational energy due to such pulse forces (The basic theory will be covered in the next section).

3. Many commercial swinging toys already use such pulse force mechanisms. Many of these toys use Integrated Circuit techniques.

4. If the swinging arm of such a toy were replaced by a copper wire and the copper wire were placed in between the two poles of a permanent magnet, the swinging motion will generate electricity.

5. The swinging motion would slow down as the kinetic energy was converted into electrical energy. However, the pulse force and the ¡§led out¡¨ additional gravitational force would accelerate it again.

The pendulum system with pulse force mechanism can thus ¡§lead out¡¨ gravitational energy and provide the most primitive form of Energy from Gravity machines. However, we can easily improve the pendulum system to rotating systems with drastically improved efficiency. Electricity Generators that can generate over 20,000 watts and cars that can achieve speed of over 220 km/hr have been produced and demonstrated. The inventors did not understand the theory at that time. The inventions were labeled as impossible perpetual machines. The inventor of the car marketed the car as a perpetual motion car. Many eyewitnesses even thought that the demonstrations were frauds to fool potential investors.

Joseph Newman also demonstrated a similar device in USA on March 28, 2005. The event was shown on World Television including the Disney Discovery Channel. Mr. Newman did not understand the true theory and spent over forty years trying to find the best device.

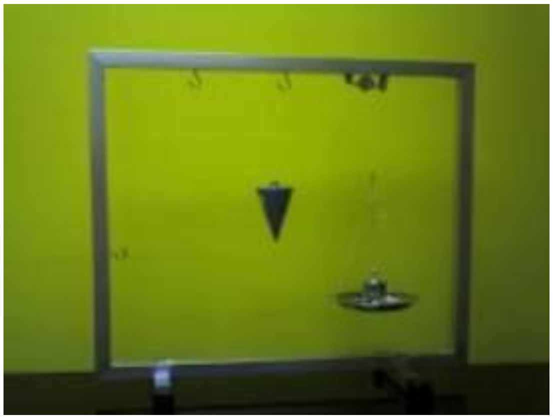
The theory is explained here. Patents have already been filed. A Company in Shenzhen will produce the working electricity generators for factories, villages, and homes etc. within the coming months.

The same theory can be applied to magnetic objects swinging or rotating in magnetic fields. The vehicles utilizing such engines need no fuel and could function even on the Moon and in Outer Space. The invention is likely to change the concept of space travel.

THE BASIC THEORY

The basic theory should have been derivable by every secondary school student who studied Physics. Fig. 1 re-explains Newton¡¦s First Law of Motion. If the Ball is pushed with a Pulse Force F for a displacement d, it will acquire a velocity v. If there were no string and no gravity, the Ball would move in a straight line with velocity v forever. With the presence of the string but no gravity, the Ball would move in a circle similar to the Earth moving around the Sun. With the presence of the string and gravity, the Ball would acquire the familiar swinging motion.

Figure 4.2 shows a nearly balanced position.

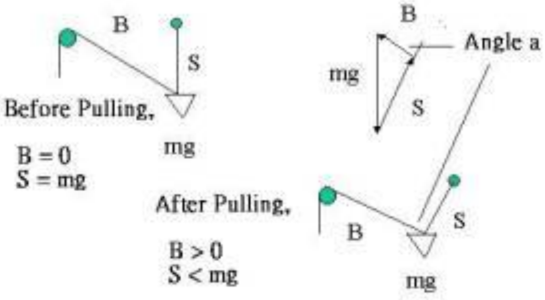


The pendulum was pulled close to the middle position. In this position, half of the force is from the tension of the String S and half is from the Pulse Force B.

The tension of the String can be attributed to Gravity. This shows:

Continuous Lead Out of Gravitational Energy by the Pulse Force B

Figure 4.2a Parallelogram of Forces.



This is the most important theoretical diagram. It uses the Parallelogram of Forces taught in all secondary schools around the World. I simply applied it to the Pendulum after learning it 50 years ago!

In Figure 4.2a, the force and energy imparted by the Pulse Force B and the String S are analyzed by decomposing them into the vertical and horizontal components.

B Force (horizontal) = S Force(horizontal) but in opposite direction

B Force (vertical) + S Force(vertical) = mg

B Energy (horizontal) = B Force(horizontal) x horizontal displacement

S Energy (horizontal) = S Force(horizontal) x 0

(displacement not in direction of force but energy is stored ¡V ready to be used on swinging back)

B Energy(vertical) = B Force(vertical) x vertical displacement
(* height raised)

S Energy(vertical) = S Force(vertical) x vertical displacement
(* height raised)

Since S Force(vertical) can be much higher than B Force(vertical), a small Pulse Force can Lead Out a large quantity of Gravitational Energy, Thus the theory can be proved mathematically and verified experimentally.

Once we understand that the Pendulum System with Pulse Force can Lead Out gravitational energy, we can easily extend that to rotational systems. The following Figures 4.3 to 4.6 illustrate this very well.

Pulse Force

Figure 4.3 shows the pendulum system with a Pulse Force.

From the previous Figures 4.1, 4.2 and the descriptions, we know that the pendulum system with Pulse Force can Lead Out gravitational energy.

Speeds up due to gravity

Slows down

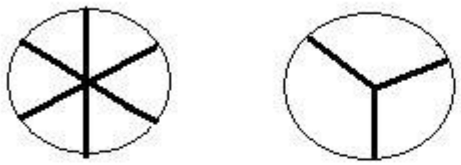
Figure 4.4 shows the swing of the pendulum extended to 360 degrees.

Instead of the oscillation motion, we now have a circular motion. However, the same theory of Extracting Energy from Gravity via Pulse Force is still valid. The Pulse Force needs to be stronger.

Figure 4.5 shows replacing the string with a rod type setup.

The oscillation is now around the center of the rod. The same theory of Extracting Gravitational Energy via Pulse Force is still valid.

Figure 4.6 shows a complete wheel replacing the simple pendulum.



A complete wheel with spoke setup can totally replace the pendulum system to extract Gravitational Energy with Pulse Force. This setup is much more efficient as the wheel can rotate at a high speed.

The use of the Wheel or Cylinder type setup is much more efficient than the simple pendulum. The energy that can be extracted per revolution is 2mgr where m is the mass of the wheel (if all the mass were at the rim),
g is the gravitational constant and r is the radius of the Wheel.

4.1 First Generation (Extract Energy via cutting Earth¡¦s Magnetic Field)

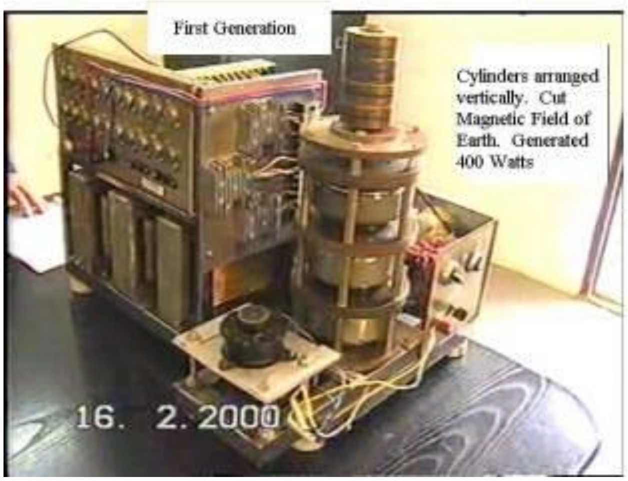
The First Generation Cosmic Energy Electricity Generator was the machine from Mr. Sung Tim Fat. It consisted of 3 cylinders spinning with the axis in the vertical direction. Each cylinder has magnetic and magnetic shielding material. The rotation essentially cut the horizontal component of the magnetic field of the Earth. The first cylinder generated enough energy to supply the pulse force to drive the second cylinder. The second cylinder generated enough energy to supply the pulse force to drive the third cylinder. The third cylinder generated 400 watts ¡V enough to supply the pulse force to drive the first cylinder and more.

The file AVSEQ02.DAT shows both the first and the second generation electricity generators in a demonstration in 2000. A separate starting motor was used. The first generation was relatively bulky. See the China Patent Office Website at http://www,sipo.gov.cn/sipo/default.htm Patent Number 99126283.2 for details.

4,2 Second Generation (Extract Energy via Gravity)

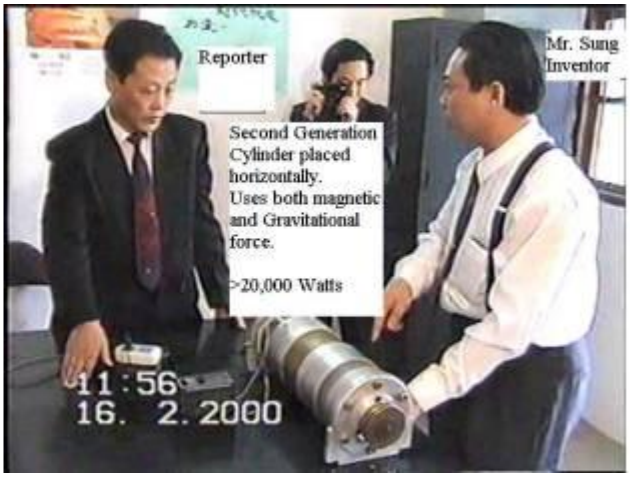
The Second Generation Cosmic Energy Electricity Generator was also a machine from Mr. Sung Tim Fat. It essentially was the First Generation set up in the horizontal direction. The axis of rotation was horizontal. This effectively uses both the vertical component of the magnetic field of the Earth and the gravitational field of the Earth. The output was 20,000 watts. Figures 4.7 and 4.8 show the differences between the First and Second Generation.

Figure 4.7 shows the First Generation


First Generation
Cylinders arranged vertically. Cut Magnetic Field of Earth. Generated 400 Watts
16. 2.2000

Mr. Sung produced the video in February 2000. The video showed that the Generator could support a lamp, a fan and an electrical drill.

Figure 4.8 shows the Second Generation

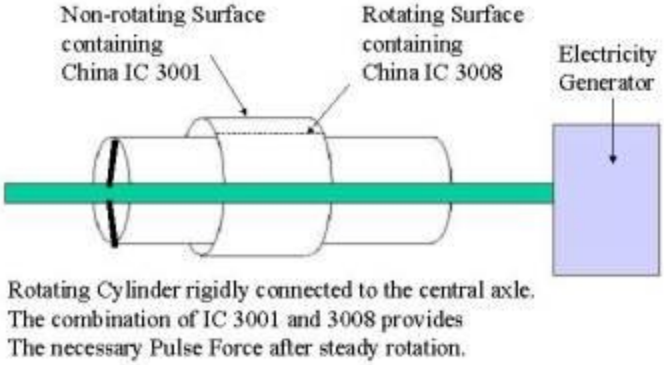

Reporter
Mr. Sung Inventor
Second Generation Cylinder placed horizontally. Uses both magnetic and Gravitational force.
>20,000 Watts
11:56
16. 2.2000

The Second Generation could generate 20,000 watts. Unfortunately, Mr. Sung went out of funds and borrowed from the Black Market. The consequence was that he ended up in heavy debt and had to hide from the moneylenders.

4.3 Third Generation (Use of Intelligent Chips)

The Third Generation was from Dr. Liang Sing Yan. Dr. Liang got the Generator from Mr. Sung and improved it. He used Intelligent Chips (a step better than Integrated Circuits) to provide the pulse force. The car could provide 188 horsepower and was demonstrated in 2003. Figures 4.9 and 4.10 show the details.

Figure 4.9 The Engine behind the Dr. Liang Car.


Non-rotating Surface containing China IC 3001
Rotating Surface containing China IC 3008
Electricity Generator
Rotating Cylinder rigidly connected to the central axle.
The combination of IC 3001 and 3008 provides
The necessary Pulse Force after steady rotation.

It consists of two cylinders with Intelligent Chips to provide the Pulse Force. The disadvantage was loss of power when climbing steep slopes.

Figure 4.10 The Car that requires no fuel

The details could be seen in the video AVSEQ01.DAT.

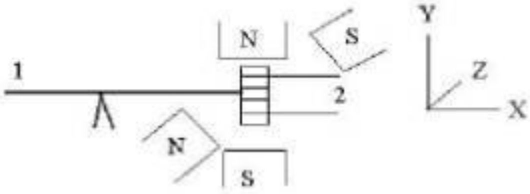
Dr. Liang made a major mistake in his raising of funds. He authorized many agents to help him. Many of these agents made false promises to investors. When Dr. Liang tried to present his inventions in Dec 2004, many angry investors filed lawsuits against him and his agents. The show was cancelled.

I believe that Dr. Liang should be rescued. His invention and ours will create phenomenal wealth for China and the World. See China Patent Application Number 01123526.8 for details.

4.4 Fourth Generation (Extract Energy via Changes of Magnetic Flux)*

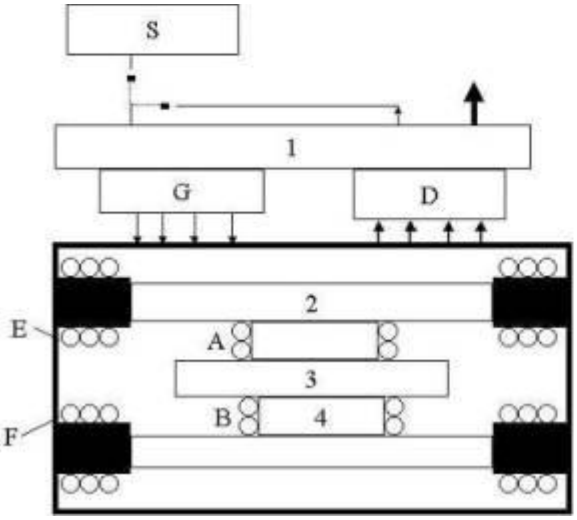
After we understood the use of rotation to extract energy from gravitational or magnetic fields, we started to investigate whether we could use vibration or no vibration at all. The answer to both questions were yes. The demonstration of a vibration device was from Taiwan using ocean waves. The demonstration of a non-vibrating device came from US patent 6,326,718. The non-vibrating device used changes in magnetic flux as the pulse force. Figures 4.11 and 4.12 show the details.

Figure 4.11 shows a vibration system.



A practical implementation was a vibration system using ocean waves as power from an Inventor in Taiwan.

Figure 4.12 shows a non-vibration system



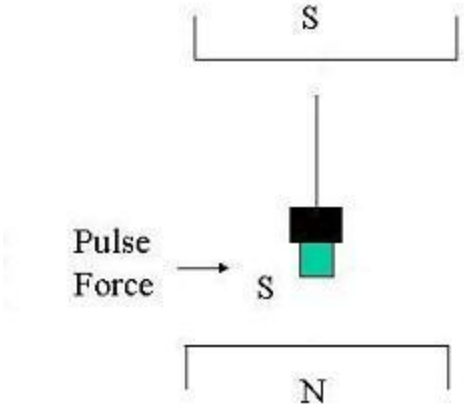
S supplies power to 1 which provides AC current via G to coils A and B. 3 is a permanent magnet to provide added magnetic flux to 2 and then to coils E and F. E and F provide AC power via D to 1. The output power from E and F is higher than that from A and B

The advantage of this technique is that the size of the Generator can be very small. However, the development is in early stages and much more effort is required to turn it into a usable product.

4.5 Fifth Generation (Improving the Third Generation over 100 times)*

The Fifth Generation came as a flash of brilliance from Mr. Lee Cheung Kin. We were trying to solve the slope-climbing problem of the Dr. Liang car. With pure gravitational force as source of power, the power decreases when the car climbs up a steep slope. If the outer cylinder of the Dr. Liang engine were replaced by a magnetic field and the Intelligent Chips in the inner rotating cylinder changed polarity at the highest and lowest positions, the problem would be solved with great increase in power at the same time. Figures 4.13 and 4.14 show the details.

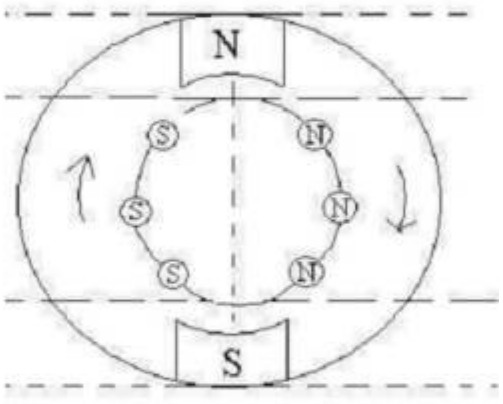
Figure 4.13 shows the enhancement of Gravity with Magnetic field



The magnetic pendulum has magnetic shielding material at the top. When such a pendulum swings under the Pulse Force, both Gravitational and Magnetic Energies are extracted.

(The equivalent gravitational constant can be less if the shielded magnet has N pole exposed. The consequence will be the subject of another report.)

Figure 4.14 shows the improvement over the Dr. Liang Engine



The Intelligent Chips at the outer cylinder are replaced by a magnetic field. The ICs in the inner cylinder are programmed so that they are N poles on one side and S poles on the other to provide a clockwise pulse force. The Magnetic Field can be very strong and all IC chips contribute to the Pulse Force.

We seek investment to further develop this generation of Cosmic Energy Machines. Please contact Mr. Stephen Chan, Marketing Manager, China Venture Capital Research Institute (Tel: 852 9184 4277) for investment details.

5. Summary

The summary is modified from our PCT patent application. (PCT/IB05/00138)

This invention uses the corrected theory of the pendulum to extract energy from gravitational fields. A pulse force applied to a pendulum can lead out gravitational energy. The energy can be changed into electrical energy such as allowing the metallic string of the pendulum to cut a magnetic field. The oscillation motion will slow down but the pulse force will lead out gravitational energy to speed it up again. The oscillation motion can be changed into a rotational motion for a more efficient operation. The same technique can be applied to magnetic or electrical fields.

We have effectively solved the World Energy Crisis. Oil is no longer a strategic material and there is no need to go to war over it. World Peace is one step closer. Modern Wealth will be the quality and quantity of Meaningful Economic Activities. Such Activities are infinite. The World can embark on the path leading to the Wisdom Society. Ignorance and Poverty will be history.

---

http://peswiki.com/index.php/PowerPedia:Lee-Tseung_Lead_Out_Theory
http://peswiki.com/index.php/Directory:Rasa%27s_Zero_Point_Institute

Thank you for reporting the work of my team (Lawrence Tseung et al) in the past.

Now we have something more concrete and interesting to demonstrate to the World. We now have a Pulse Motor that has been demonstrated to over 25,000 persons in two Open Shows in Hong Kong (InnoCarnival09 in November 2009 and Inno Design Tech Expo in December 2010.)

The Pulse Motor Wheel was developed by Mr. Tong Po Chi with my guidance using the Lead-Out Energy Theory. The Wheel had a 60 cm rotor with 16 equally spaced magnets. There were 15 corresponding air coils that could be configured as a Drive Coil or as a Collector Coil. The remaining position was used by a Proximity Switch.

The operation is as follows:

1. The Input Power comes from a 12 V battery.

2. Once switched on, the Wheel might start to rotate by itself or by hand if it happened to stop at one of the “dead positions”.

3. The Proximity Switch was set so that when a magnet on the rotor passed next to it, it would pass current via a relay to the Drive Coils. It would stop passing current when the magnet moved away.

4. The Proximity Switch could be adjusted so that the current passed through the Drive Coils when the magnets moved slightly passed the center of these Coils. These Coils became temporary magnets repelling the magnets to provide the Pulse Force.

5. The Coils would show no magnetic properties as soon as the magnets moved away as they were AIR coils.

6. The Drive Coils were connected in parallel and the Collector Coils were connected in series.

7. The Input Power was measured with DC Voltmeters and amp meters across the Drive Coils.

8. The Output Power was measured after converting the AC to DC across the Collector Coils.

9. When 10 Drive Coils and 5 Collector Coils were used, the Output Power as measured from the meters was greater than the Input Power. The actual COP (Output/Input) varied with the external load (1-3 3 watt lamps or a 47 Ohm resistor) and Proximity Switch tuning. The value varied from 1.8 to 4.2!

We now openly invite independent experts to verify the experimental results in Hong Kong. The Tong Wheel is now at the Office of Dr. James Wong of the Institute of Energy (IOE) of Hong Kong. You can email me to arrange for a suitable time.

How it Works

Innovation – The Story of Lawrence Tseung (3.3 Mb; doc) - Author: Lawrence C. N. Tseung; Editor: Miss Forever Yuen; Draft on Sept 4, 2008(The file is a draft review copy of a coming book.)

"In the Cosmic Energy Machines, we are NOT trying to create energy. We are using a Pulse Force to Lead Out energy. The layman's analogy is using a bucket to pour water from a large tank at the top of a hill. The energy of water flowing down the hill is NOT the muscle energy. The energy of water flowing down the hill is mainly the potential energy of water already available." ltseung888

"The Lee-Tseung theory predicts that both gravitational and electron motion energy can be lead out via pulse force at resonance on oscillating, vibrating, rotating or flux change systems. The ideal pulse force for a simple pendulum can be thought of as the pull applied perpendicular to the arc of motion when the pendulum bob is at the maximum displaced position. The detailed mathematical proof is via the analysis of the simple pendulum during the application of the ideal pulse force. The pulse force increases the tension of the string and leads out gravitation energy. For a horizontal pulse force, two parts of pulse energy can lead out approximately one part of gravitational energy. This gives a Coefficient of Performance (COP or output energy/input energy) of 1.5 during the application of the pulse. Some forum members did not appreciate the qualifying statement of "during the application? and thought that the pulsed pendulum was a COP =1.5 system as a whole.

This misunderstanding is corrected here:

(1) Let the time at which pulse force is applied be T pulse

(2) Let the time of oscillation of the pendulum be T oscillation

(3) Let Tpulse be 1/100 of T oscillation. This represents the real case of pushing a swing and then let go. Most of the swinging time has NO pulse force.

(4) Let the system during the NO pulse force period be very efficient. Assume the COP is 1.0.

(5) The overall COP for such a system is not 1.5 and should be calculated as follows: 1.0 + (1.5 – 1)*1/100 (Spreading the higher efficiency over the total time) = 1.0 +0.005 = 1.005

(6) In the real world, the pendulum has COP less than 1 during the NO pulse force period. Thus the net result of the real pulsed pendulum is less than 1.

(7) In order to get the real pulsed pendulum to exceed 1, we have to do one or more of the following:

Increase the number of pulses per unit time
Increase the pulse period
One practical way is to change the pulsed oscillation of the pendulum to the pulsed rotation of a cylinder.
With a pulse- rotating cylinder, we can increase the number of pulse points; increase the rotational speed; increase the mass at the rim; and increase the diameter of the cylinder to lead out the larger amount of gravitational energy.

The gravitational energy is not created but lead out. Patent offices, scientists and many inventors have not understood this lead out energy source in the past. Use of this lead out energy does not violate the law of conservation of energy."

Overunity Pulse Motor by Mr. Tong and Dr. Lawernce Tseung

"The secrets of making an overunity pulse motor: To bring your pulse motor into overunity mode there is a subtle balance between the shape and sizes of coils and magnets, size of the wheel, speed of the wheel, timing of the pulses, and the ratio of generator coils compared to motor coils. This unit has 16 magnets, 1 of the magnets is passing the sensor, 10 of the magnets are passing motor coils (connected in parallel), and 5 of the magnets are passing generator coils (connected in series). The input is around 1.8 Watts DC, and the output (after rectification) is around 2.3 Watts DC.

As you can see this design is very simple and was just made as a proof of concept. Major improvements are underway.
Two hints for those trying to build their own pulse motors: 1. High speeds are not necessarily better. 2. A smooth running wheel is certainly not better. It is the jerkiness between generator mode and when the drive pulse hits the magnets that allows for the overunity potential of the electromagnetic fields to be extracted.

Please help support the brilliant work of Mr. Tong and Dr. Tseung. If your local University would like to purchase a simple overunity demonstration kit, we can send you the parts and the complete set up procedures. The set up process is very important and must be done in a careful way." (YouTube; February 04, 2010)

Circuit explained

"Oops, I made a mistake. Of course the sensor goes directly to the pulsing unit and the battery goes directly to the meters. The pulsing unit allows current to pass from the battery to the coils. The output goes through the meters and to a 3KW light. There is a little Back EMF being picked up by the drive coils before they fire which can be seen by the meter when you switch it to AC. However this is just being discarded for now. Those green laser sensors with the rainbow wires are not being used at this time." (YouTube; February 04, 2010)

Other Links :

http://www.overunity.com and search on "ltseung888"

http://magnetmotor.go-here.nl/sung-tim-fat/

http://www.overunity.com/index.php?topic=2794.msg102108

---

http://www.energyfromair.com/IOE%5Ftalk/index.files/frame.htm

Presenting the Lee-Tseung Lead Out theory and Principles of the Flying Saucer

by

Lawrence Tseung

Institute Of Energy
Sept 8, 2008

Law of Conservation of Energy

Essence of the Theory

When a sideward pull is applied to a simple pendulum, the lead out gravitational energy is equal to The vertical component of the tension of the string times the vertical component of the displacement.
So long as there is tension on the string, gravitational energy will be Lead Out.
The ideal Lee-Tseung Pull is when the direction of pull is tangential.

Using Gravitational Energy ... Inspiration from the swing or pendulum ... Review of Physics

(1) Parallelogram of Forces ... Experimental Set Up ... Review of Physics

(2) Modified for the Pendulum ... Experimental Set up ... Review of Physics

(3) Work done (energy spent) ... When we are given the two end Positions A and B We can detect difference in Potential Energy and hence Work Done. However, the Force and/or Displacement functions can vary... Actual work done or energy spent can be different! ... Different ways of moving from Position A to Position B (a) ... Different ways of moving from Position A to Position B (b) ... Different ways of moving from Position A to Position B (c) ... Experimental Set up ... Review of Physics

(4) The Lee-Tseung Pull
We now introduce one particular way of moving the pendulum bob from Position A to B ... The horizontal scale is kept as horizontal as possible with a slight upward movement of the hand to get from Position A to B ... This horizontal pull will cause the tension of the top scale to increase... Gravitational energy is Lead Out!!! ... The fourth and fifth way of pulling the pendulum ... Review of Physics

(5) Use of Gravitational Energy ... Use of Gravitational energy is not new ... Turbine at dam generates electricity...
Water get evaporated and come down as rain to fill dam again ... Can we shorten this cycle? ... Yes. Tension of String of Pendulum Bob can do work. ..The mathematics will be explained in the following slides.

Force Considerations in using Gravitational Energy
Displacement Consideration
General
Work = Force x Displacement
Work = Force x Displacement (vector)
Hori work = F x Lsin(a)
Vert work = Mg x L(1- cos(a))
Hori work is done by the externally supplied force F
Vert work is done by gravity via the tension of the string.

Substituting the actual values

Assume M=60Kg, g=9.8m/s/s. L=1m. F=1/6 of Mg. Angle a = 9.46 degrees, T1=Mg/cos(a), we get:
Horizontal work done by F (horizontal energy) = 16.10728 Joules
Vertical work done by Gravity through String
= 8.0069 joules
The ratio hori energy/vert energy is thus = 16.10728/8.0069
= 2.014
* Approximate 2 parts Horizontal Energy Lead Out 1 part Vertical Energy

Summary of discussion so far
When we pull the pendulum with a horizontal force, work is done.
Tension in the string also does work!
This work is done by Gravity via the String
This work is stored as energy in the pendulum system
This is the Lead Out energy...

Prof. René-Louis Vallée

Synergetic Generator

[Replication of Vallee's generator by an eminent astrophysicist : 4x OU ...]

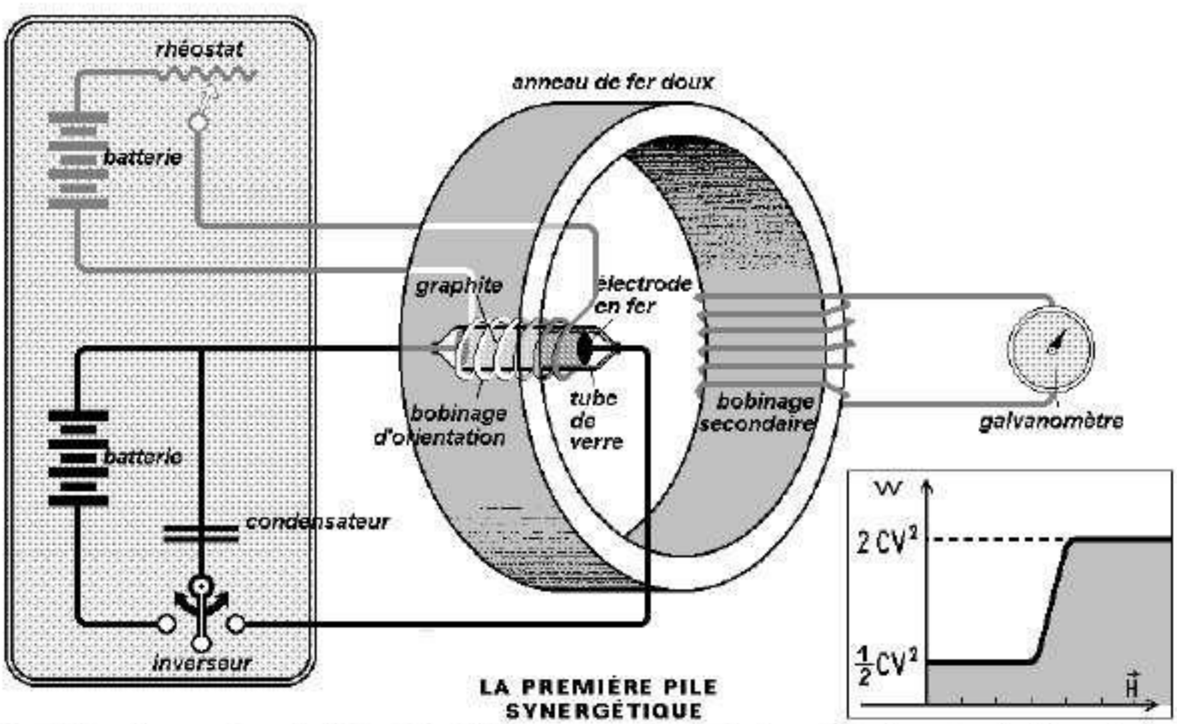
http://franckvallee.free.fr/localhost/plain/content/download/137/535/file/Science%20&%20vie.PDF

***Science et Vie* [PDF]**

Qui Osera Refuter la Synergetique ?

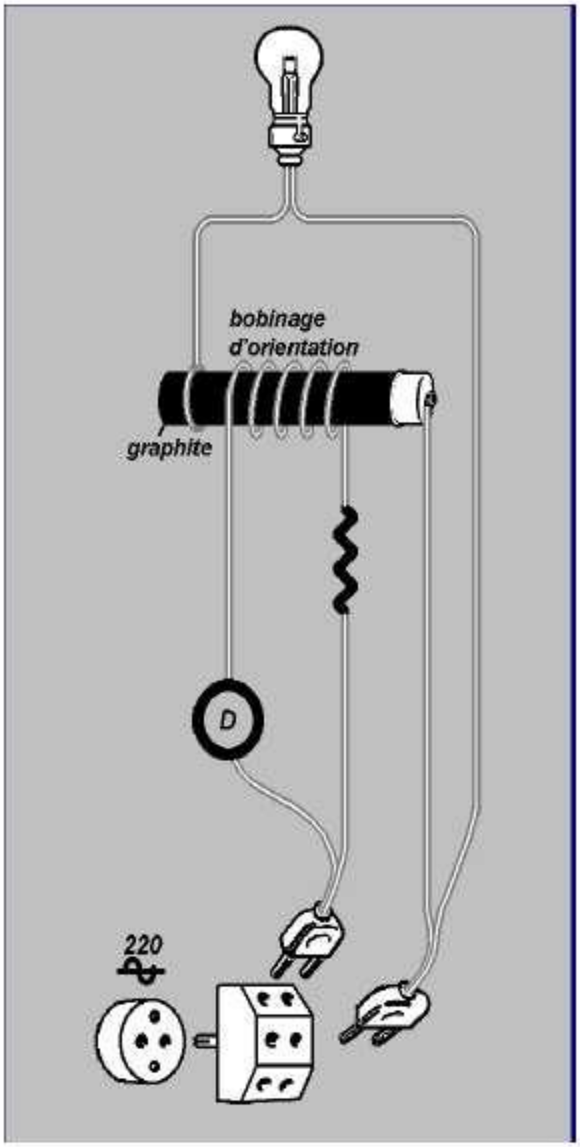
by

Renaude de la Taille



LA PREMIÈRE PILE SYNERGÉTIQUE

En réalisant ce montage, le Belge Eric d'Hoker a prouvé qu'il était possible de puiser de l'énergie dans ce réservoir illimité que constituent le ondes électromagnétique de l'univers. Il ouvrait ainsi la voie des générateurs synergétiques, véritables piles inépuisables de haute puissance. Dans le dispositif schématisé ici, le courant d'une batterie charge un condensateur, lequel est ensuite déchargé à travers du graphite scellé dans le verre entre 2 électrodes de fer. En l'absence de courant dans le bobinage d'orientation, on ne recueille au secondaire que l'énergie envoyée au primaire, moins les pertes habituelles, soit environ 1/2 CV². Si on élève le courant dans le bobinage avec le rhéostat, on note à partir d'un certain seuil que le courant recueilli par le galvanomètre est 4 fois plus fort, soit 2 CV². Ce surcroît de puissance vient du milieu diffus sur lequel on a prélevé l'énergie par l'intermédiaire du carbone, comme prévu par la théorie synergétique. La contre-expérience faite en remplaçant le carbone par un autre élément conducteur ne montre plus la moindre multiplication de puissance au secondaire.



SYNERGÉTIQUE DE PUISSANCE POUR BRICOLEURS AVERTIS

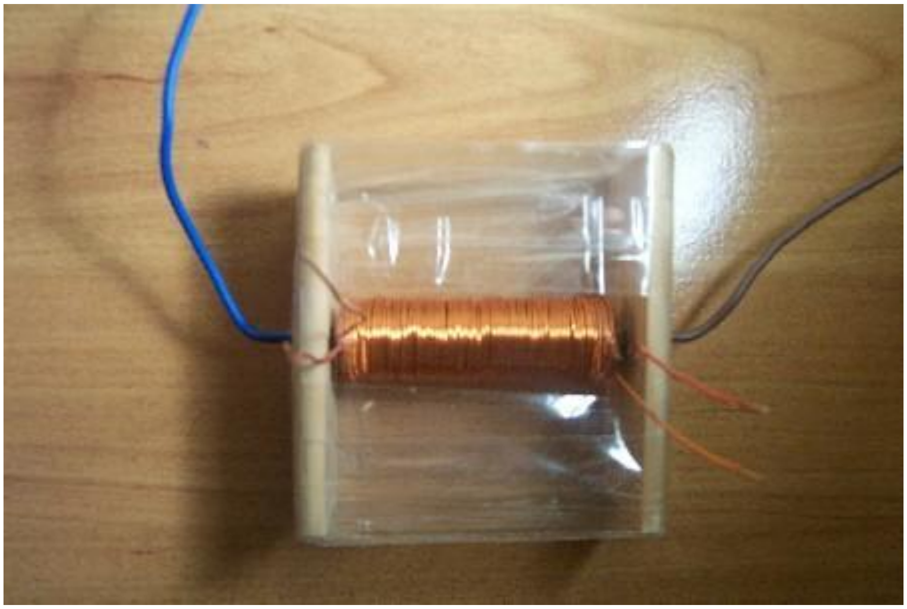
C'est un montage facile à faire: un bâton de carbone prélevé sur une pile ronde est reliée au secteur en interposant une ampoule qui sert de résistance. Autour du carbone, un bobinage en fil de cuivre relié lui aussi au secteur à travers un montage D qui assure la mise en opposition de phase le champ magnétique ainsi créé et du champ électrique dans le graphite. Si le couple champ électrique/champ magnétique est bien choisi, on multiplie une centaine de fois au moins la puissance prise au secteur. A manipuler, donc, avec attention, la hasard pouvant trop bien faire les choses.

Replication by Spanish R&D group Econuclear

---

http://www.onnouscachetout.com/forum/topic/7684-synergetique-production-denergie-libre/

... Je m'étais mis de côté l'idée de réaliser une reproduction de l'expérience après les tentatives que je faisais à l'époque pour travailler sur le MEG.
Aussi j'ai bricolé un dispositif, avec un baton de carbone récupéré dans une pile bâton (une grosse) et du fil de cuivre à bobiner.
Voici mon montage provisoire:



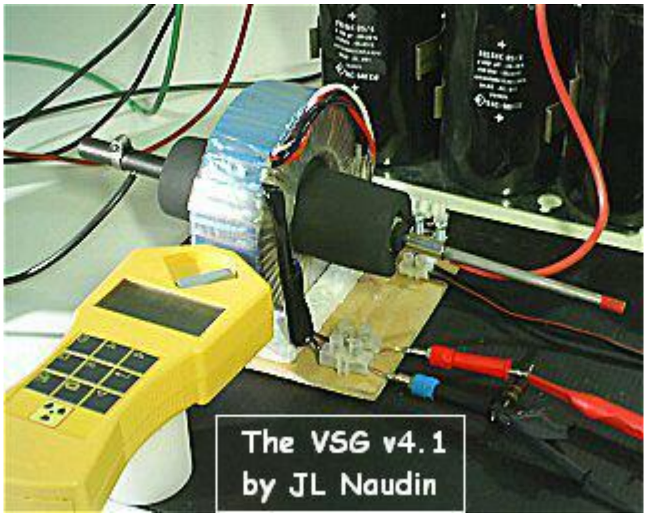
Kudos to

http://jlnlabs.online.fr/vsg/
"Acknowledgement : I am grateful to Franck Vallée for his helpful documentation and advice in this field

of research."

Video : vsgdemo.wmv (2.9 MB)

The Vallee Synergetic Generator



THE VSG experiment

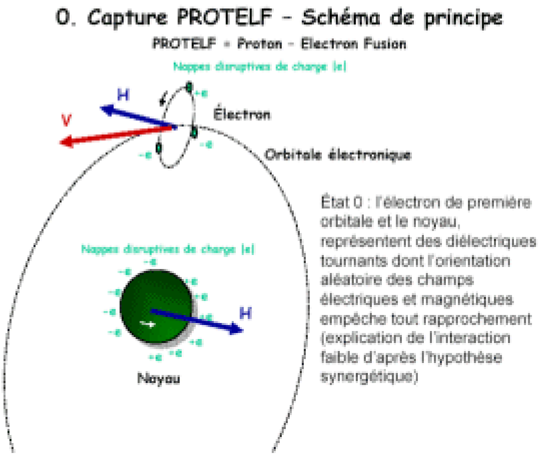
This experiment is fully based on the Prof René-Louis Vallée Synergetic theory (1). The purpose of this experiment is to find a simple and reproducible device which is able to produce the nuclear reaction claimed by the Prof R.L. Vallée. The main material used in this device is a pure carbon rod. Here, the carbon is not consummed by the reaction, it acts as a pump Vs the Vacuum EM energy.

So, according to the Prof R.L. Vallée theory, the required condition to get the Synergetic effect is :

1. To align the fields of the electrons and the nucleus of the carbon atoms by the use of a colinear E-Field and B-Field,
2. the energy of external photons (g) is used to absorb the kinetic energy of the electrons,
3. so, the stopped electrons can be attracted by the carbon nucleus,
4. a nuclear reaction begins: the Carbon is transmutted into radioactive Boron (which has a radioactive decay of 20ms)
5. then, the vacuum energy is tapped by the nucleus and the Boron is transmuted back to Carbon while a strong pulse of 13 Mev is sent (see the reaction below) .

$$^{12}_{6}C^{+} \quad + \quad ^{0}_{-1}e \quad + \quad (X \ \ \mathrm{keV}) \quad = \quad ^{12}_{5}B$$

$$^{12}_{5}B \quad = \quad ^{12}_{6}C^{+} \quad + \quad ^{0}_{-1}\beta \quad + \quad (W_{m} = \ 13 \ \mathrm{MeV} \ )$$

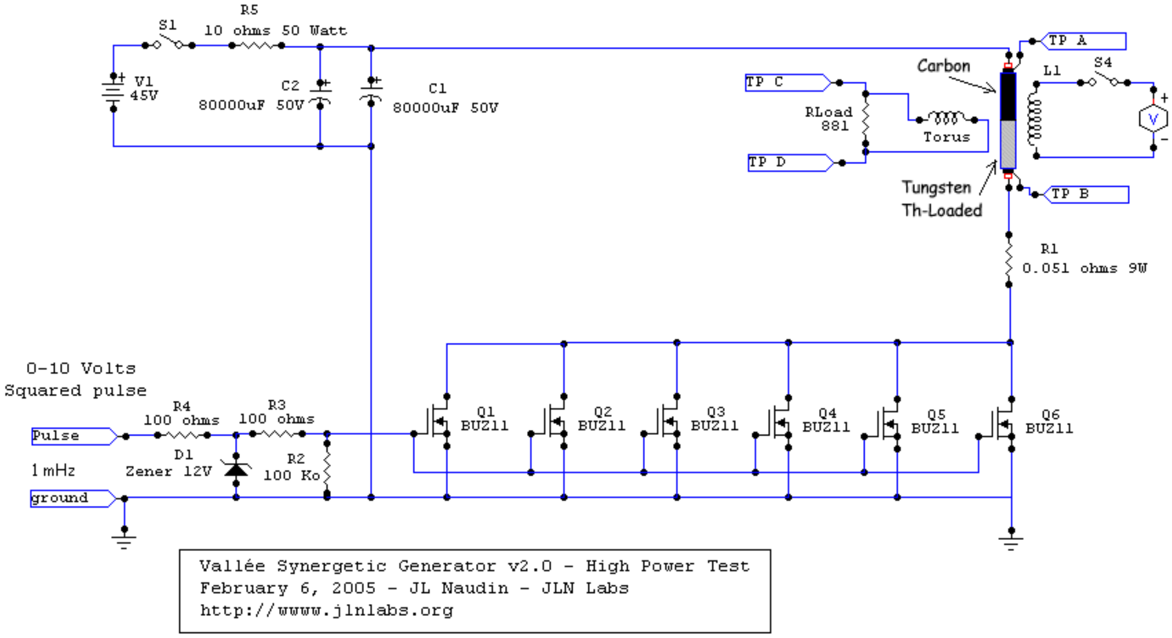

0. Capture PROTELF - Schéma de principe

PROTELF = Proton - Electron Fusion

État 0 : l'électron de première orbitale et le noyau, représentent des diélectriques tournants dont l'orientation aléatoire des champs électriques et magnétiques empêche tout rapprochement (explication de l'interaction faible d'après l'hypothèse synergétique)

Nappes disruptives de charge |e|
H
V
Électron
Orbitale électronique
Nappes disruptives de charge |e|
H
Noyau

This process is the called "Capture PROTELF " 3 (PROTon - ELectron Fusion) process by the Prof R.L. Vallée. A such process is able to produce up to 2.988 GW of Free Energy per gram of Carbon used, while the carbon is not consumed...


Vallée Synergetic Generator v2.0 - High Power Test
February 6, 2005 - JL Naudin - JLN Labs
http://www.jlnlabs.org

Reference Documents :

L'Energie Electromagnétique matérielle et gravitationnelle, les bases de la théorie Synergétique par René-Louis Vallée
 The Electromagnetic energy, material and gravitational by René-Louis Vallée
http://jlnlabs.online.fr/vsg/synergetics.pdf

[PDF Here -- 3.5 MB]

La Théorie Synergétique par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/index.htm

Les bases de la mécanique Synergétique par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/meca.htm [PDF Here]

La Synergie des noyaux et la radioactivité par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/noyau.htm [PDF Here]

Synergétique N°11, édité par la SEPED

Capture PROTELF - Schéma de principe par Franck Vallée
http://jlnlabs.online.fr/vsg/protelf.htm

La relève de l'Energie - La Synergétique, édité par la SEPED

Le Vide producteur d'énergie - Captation de l'énergie diffuse
http://jlnlabs.online.fr/vsg/nrjduvide.htm

Les certitudes du modèle "Synergétique" et le principe d'incertitude de "Heisenberg"
http://jlnlabs.online.fr/vsg/certitudes.htm

La gravitation et la radioactivité, actions de milieux sur la matière.
http://jlnlabs.online.fr/vsg/neutrino.htm

Rappel de quelques notions élémentaires de physique nucléaire
http://jlnlabs.online.fr/vsg/physics.htm

La théorie Synergétique : Une solution à la crise de l'énergie
http://jlnlabs.online.fr/vsg/synergetique.htm

The Synergetic theory: A solution to the energy crisis
http://jlnlabs.online.fr/vsg/synergetic.htm

The Vallée Synergetic Generator (VSG) project LogBook :

The Electromagnetic energy, material and gravitational by René-Louis Vallée
http://jlnlabs.online.fr/vsg/synergetics.pdf [PDF Here]

La Synergie des noyaux et la radioactivité par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/index.htm

La Théorie Synergétique par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/index.htm

Les bases de la mécanique Synergétique par René-Louis Vallée
http://jlnlabs.online.fr/vsg/theorie/meca.htm

Full tests of the VSG v3.5 with a VIDEO DEMONSTRATION (Energy factor 2.66)
http://jlnlabs.online.fr/vsg/vsg35.htm

The Synergetic theory: A solution to the energy crisis
http://jlnlabs.online.fr/vsg/synergetic.htm

La théorie Synergétique : Une solution à la crise de l'énergie
http://jlnlabs.online.fr/vsg/synergetique.htm

Rappel de quelques notions élémentaires de physique nucléaire
http://jlnlabs.online.fr/vsg/physics.htm

La gravitation et la radioactivité, actions des milieux sur la matière.
http://jlnlabs.online.fr/vsg/neutrino.htm

Sucessfull High Power tests run with the VSG v4.1 (Energy factor 3.46)
http://jlnlabs.online.fr/vsg/vsg41.htm

Les certitudes du modèle "Synergétique" et le principe d'incertitude de "Heisenberg"
http://jlnlabs.online.fr/vsg/certitudes.htm

Le Vide producteur d'énergie - Captation de l'énergie diffuse
http://jlnlabs.online.fr/vsg/nrjduvide.htm

Sucessfull tests run with the new VSG v3.1 (Energy factor 2.53)
http://jlnlabs.online.fr/vsg/vsg31.htm

Full detailed explanations about the PROTELF working process
http://jlnlabs.online.fr/vsg/protelf.htm

Use of the full discharge energy of the capacitor, test with a 1 ohm shunt on the CT output
http://jlnlabs.online.fr/vsg/vsg21.htm

Problem with the discharge area, the plastic tube of the coil has melted
http://jlnlabs.online.fr/vsg/vsg20b.htm

The first VSG tests with a solid state High Power MosFET switcher (Energy factor 2.08)
http://jlnlabs.online.fr/vsg/vsg20.htm

Preliminary tests of the VSG with a mechanical switch
http://jlnlabs.online.fr/vsg/vsg10.htm

VSG v2.0 (6 Feb 2005)

As I have said previously, the main material used is pure carbon, so, I have used a pure carbon 6 mm diameter rod (see the analysis certificate below). To get a free **g** rays source to initiate the main reaction, I have used a Thoriated Tungsten rod (6mm diameter) with 2.20% of ThO_2. A radiations counter is able to measure 0.46 µSv/h while the ambiant level is 0.10 µSv/h. A such electrode (WT20) is commonly used for TIG and Plasma welding and I have alredy used it previously in the *High Temperature Plasma Electrolysis* experiment

As, the Prof R.L. Vallée said, one of the most important thing is to get the Carbon in gaseous phase, this can be simply obtained by the use of thin spark gap between the Th loaded tungsten rod (used as the cathod) and the carbon rod (used as the anode). So, when the strong discharge current pulse is sent between them, some carbon is vaporised in the B-Field area while some **g** rays are emitted by the ThO_2. All the required conditions to get the Vallée' Synergetic effect are gathered...

he Carbon and the Th-Loaded Tungsten rod assembly is inserted in the axis of a cylindrical coil. The current pulse is measured by a current transformer (400:1) loaded with a 881 ohms resistor. The nuclear reaction (if there is one...) is monitored with a radiations counter. I have used a Gamma-Scout® handheld radiations detector.The Gamma-Scout® reliably measures alpha, beta, gamma and X-radiations, it is the latest development in handheld Geiger counters, designed specifically for homeland security.

Tests protocol :

1. The two 80000 µF capacitors are fully charged at 37 V.

2. The function generator sends a squared pulse to the High Power MosFET switching circuit. The capacitors are discharged through the 0.051 ohm resistor and the VSG unit.

3. The strong pulse of current is trapped with a current transformer loaded with a 881 ohms resistor. The voltage accros the resistor is measured with a Shielded Test Lead STL 120 (1:1, 1 Mohms/225 pF) and recorded in real time by the digital oscilloscope Fluke 123

4. The radiations counter is checked for some eventual nuclear reactions.

Two tests have been performed, the first (blank) test has been conducted without the B-Field, the second test has been conducted in presence of a colinear B-Field produced by the long coil placed around the rods. The B-Field produced by the coil is continuous.

Below, you may see the recorded voltage accross the Rload resistor with and without the B-Field. In these scope diagrams, you may notice that the current pulse is stronger when the colinear B-Field is activated (red curve).

During these VSG tests the radiations counter has shown a net increase of the radiations level when the colinear B-Field is used. It is interesting to notice that the measured radiations remain at least 10 seconds after that the short current pulse has been sent. This increase of the radiation level when the conditions are gathered shows that a nuclear reaction seems to occured.

Comments about the radiations level : It is important to notice that the higher level of the radiation measured (0.26 µSv/h) here in this VSG experiment is located in a common ambiant radiations level range. So, the radiations level measured in this experiment is safe for your health. For exemple, when you fly in an intercontinental jet liner which flies at about 15000 meters, the radiation level is about 5 µSv/h, this is 1.3 time more than in this VSG experiment...

Comments : These tests of the VSG v2.0 are very interesting and need to be developped deeply. If the effects measured during these tests are not a simple measurement artifact, they can be directly related to the Prof R.L. Vallée Synergetic theory and thus, this can be a real breakthrough and opens a new path in free and clean energy production.

After more than 20 test runs with the VSG v2.0, I have noticed that the measured signal becomes more irregular than during the first serie of tests. I have tried to change the RLoad value to a 21.5 ohms ceramic resistor, whithout success, the signal was still chaotic. The efficiency has decreased to about 120%. (see the results below)

After some investigations to find an explanation of this problem, I have found that the tip of the tungsten rod which was in contact with the carbon rod was entirely covered with a thin carbon powder.

The presence of thin particles of carbon on the tip of the Thoriated Tungsten rod confirms that some carbon has been vaporized by the discharge process during the lot of test runs. Now, I need to clean up the tungsten and the carbon rod and also the reaction chamber inside the coil...

After a lot of test runs, I have encountered the first problem with the VSG, the carbon rod has melted the plastic tube of the coil and the sparks have vaporized some carbon powder on the tip of the tungsten rod, this has damaged the contact area between the carbon rod and the Th-load tungsten rod (8 Feb 2005). So, after that I have cleaned the tungsten cathod and placed a new carbon rod, the VSG is now ready for new tests runs.

The purpose of these new tests is -- to use the full energy of the capacitor so as to get a max useable energy at its output. In the previous experiment, I have used only a very short discharge pulse (166 µs). Now, in this case the function generator has been set so as to get a full discharge of the capacitor ... to measure the real current which flows in the carbon rod with a more accurate method ...

For a better accuracy of the measurements with the current transformer, I have decided to use a low resistance shunt (1 ohm) placed across the CT output instead of the 881 ohms RLoad. This will reduce strongly the influence of the magnetisation current which flows inside the Current Transformer (CT) when a high impedance load is used on its output. The Current Transformer (CT) used in this test is a 400:1 (15 KVA). To measure the resistance of the Carbon rod more accurately, I have used the 4 wires method by measuring the current and the voltage with two digital multimeters.

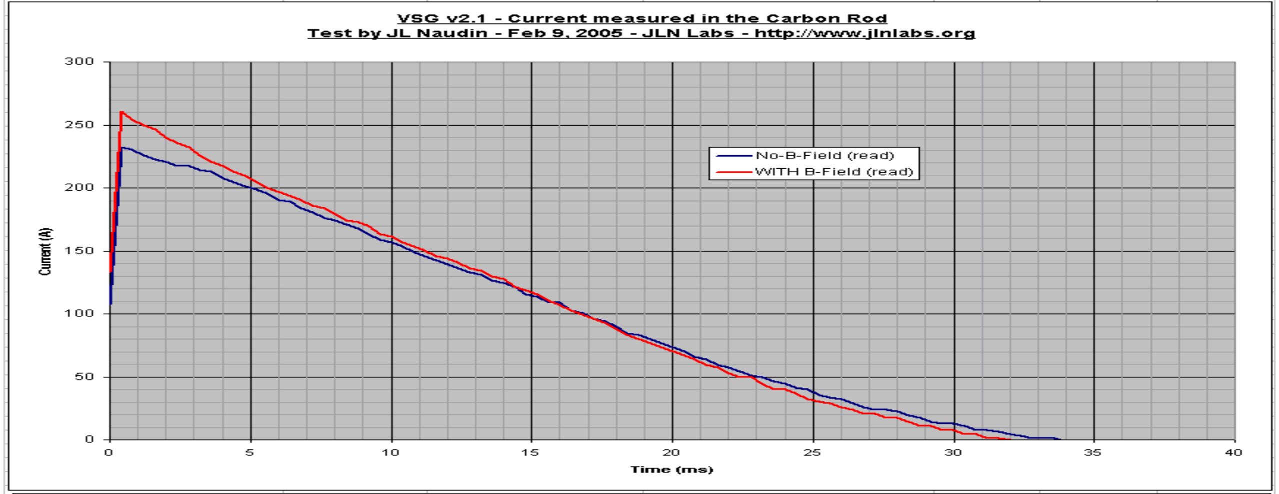
You may notice that the major gain in energy (10 J) is obtained during the first 5 ms of the discharge process, this can be explained by the existence of a working point of the VSG. A proper E-Field and B-Field level must be found so as to get the best energy efficiency.

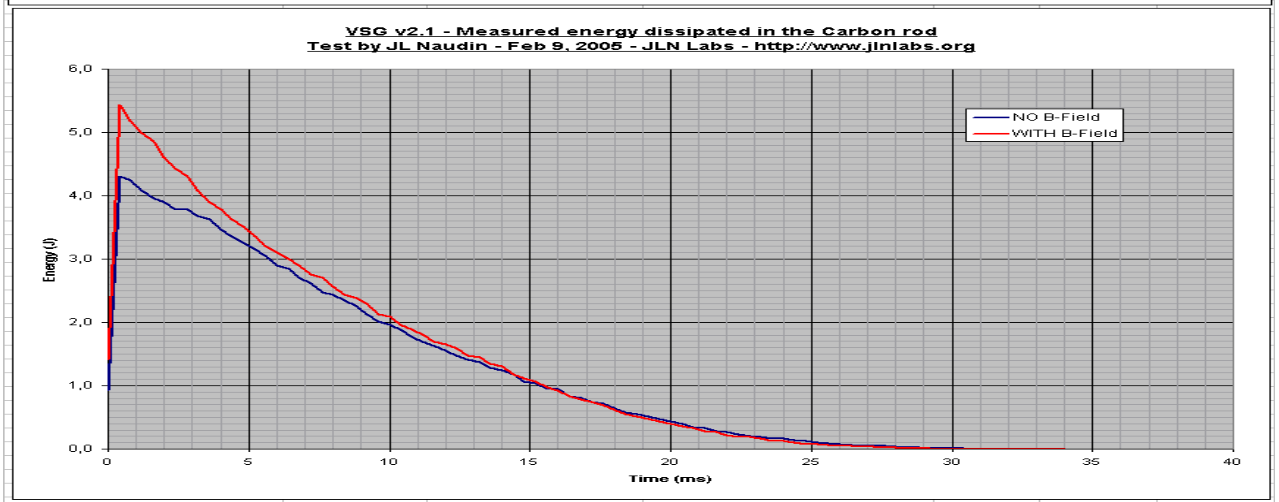
VSG v2.1 (Vallée Synergetic Generator)

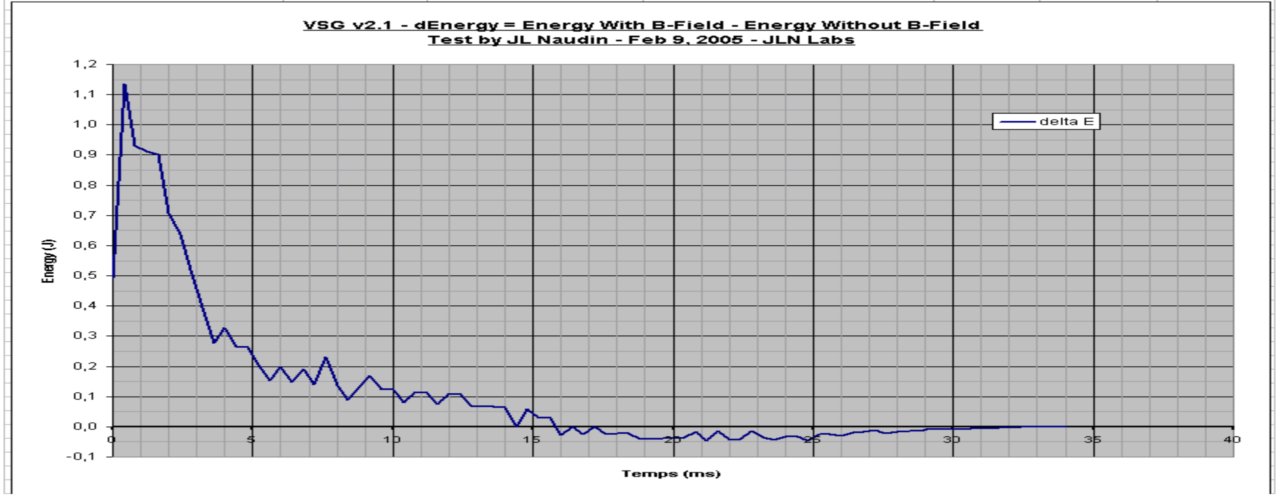
Tested by JL Naudin

February 9, 2005 http://www.jlnlabs.org Email:jnaudin509@aol.com

Shunt (ohm)	**1,0**	**Current Transformer**	**400:1 (15KVA)**
Capacitors (F)	**0,16**	**Carbon (ohm)**	**0,2**
Cap Voltage (V)	**38**	**Current Peak (A)**	**261**
B-Field (gauss)	**33**	**C rod size**	**6 x 40 mm**
Disch Pulse (J)	**115,5**	**E Field (V/m)**	**1304**
% of cap energy discharged	**95%**		
Rad. (µSv/h) Without B-field	**0,12**		
Rad. (µSv/h) WITH a B-field	**0,26**		
Energy in the Carbon (J) Without B- Field	**109,5**	**Pulse dur. No B-Field (ms)**	**34**
Energy in the Carbon (J) With the B- Field	**119,4**	**Pulse dur. With B-Field (ms)**	**32**
Energy efficiency (%)	**109%**		
Power No B-Field (W)	**3221**	**Power gain (W)**	**510**
Power With B-Field (W)	**3731**	**Power Efficiency (%)**	**116%**


VSG v2.1 - Current measured in the Carbon Rod
Test by JL Naudin - Feb 9, 2005 - JLN Labs - http://www.jlnlabs.org


VSG v2.1 - Measured energy dissipated in the Carbon rod
Test by JL Naudin - Feb 9, 2005 - JLN Labs - http://www.jlnlabs.org


VSG v2.1 - dEnergy = Energy With B-Field - Energy Without B-Field
Test by JL Naudin - Feb 9, 2005 - JLN Labs

VSG v3.1 (13 Feb 2005)

This new version of VSG seems to give a good energy efficiency, may be that this is due a stronger E-Field (1214 V/m) and a stronger B-Field (48 gauss) than in the previous design v2.0. I shall soon try with a bigger carbon rod and a bigger solenoid coil to get more nuclear interactions in the reactor.

VSG v3.5

This version v3.5 of the VSG use a 6 mm diameter and 60 mm length pure carbon rod and a 6 mm diamter Thoriated Tungsten rod (loaded with 2.20% of ThO_2). A such electrode (WT 20) is commonly used for TIG and Plasma welding and I have alredy used it previously in the *High Temperature Plasma Electrolysis* experiment. A solenoid coil is tightly wound around the carbon rod, this coil produces a colinear and continuous (DC) magnetic field inside the carbone rod, its purpose is to align the spins of the carbon atoms with the main electric field. The measured B-Field with a Gaussmeter is about 135 gauss. To get a true Synergetic effect, the required nuclear reaction is :

$$^{12}_{6}C^{+} \quad + \quad ^{0}_{-1}e \quad + \quad (X \ \ keV) \quad = \quad ^{12}_{5}B$$

$$^{12}_{5}B \quad = \quad ^{12}_{6}C^{+} \quad + \quad ^{0}_{-1}\beta \quad + \quad (W_m = \ 13 \ MeV \ )$$

If few carbon atoms are able to interact in this nuclear process (1st reaction), a superimposed current is produced by the **b** radiations during the reconstitution of carbon from boron 12 (2nd reaction) while a large amount of vacuum energy is tapped.

To measure the additional current flow in the carbon, the apparatus is placed in the main axis of a large toroid coil used as the secundary of the VSG transformer while the carbon rod acts as its primary. Two 80 000 µF capacitors are connected in parallel and charged at 37 Volts, then, these two capacitors are discharged through the carbon rod with a High Power MosFet electronic switching unit. During the discharge sequence The current flow in the carbon rod during the discharge sequence is measured with a toroid transformer (1143:1) loaded with a 881 ohms resistor (Rload). All the datas are recorded in real time with the digital oscilloscope Fluke 123.. The resistance of the carbon rod have been measured with the 4 wires method.

Test one : The solenoid coil is not powered (B-Field = 0), the capacitors are discharged through the carbon rod. The voltage is recorded with the digital scope, then the datas are stored in a computer for calculations.

Test two : The solenoid coil is switched on (B-Field = 135 gauss) few second before the firing sequence. The capacitors are discharged through the carbon rod. The voltage is recorded again with the digital scope, then the datas are compared to the previous one.

Expected results : If a significant change in the measured voltage between the '*test one*' and the '*test two*' can be detected, this can be only explained by the presence of an additional current flow in the carbon produced by the **b** radiations.

In the case of carbon, with a coefficient of effectiveness of 10^{-5} (1 atom out of 100.000 entering into reaction) and a total output of 20%, the reconstitution of carbon from boron 12 would provide 8 kw per gram of carbon used.

When the continuous and colinear B-Field is active, the current flow in the carbon rod increases significantly.

VSG v4.1 (20 Feb 2005)

This new version of the VSG uses a bigger torus transformer as a Current Transformer (CT). It has a bigger turn ratio (1143:1) and will be able to handle more current flow in the carbon. The inner diameter of the torus is also bigger, so, in this V4.1, I have used a 11 mm diameter and 120 mm length pure carbon rod with a solenoid coil wound around it.

The VSG v4.1 gives a very good energy efficiency (Energy factor With/Without B-Field = 3.46), this is due to a stronger E-Field (2030 V/m) and a stronger B-Field (60 gauss) than in the previous design v3.1. As you may see above, the power factor is also very high...

---

http://www.overunity.com/index.php?topic=1310.0

Single Circuits Generate Nuclear Reactions

Tesla_2006 * Newbie
Single circuits generate nuclear reactions
August 01, 2006

Hello, there are many single electric and electronic circuits can generate controlled nuclear reactions, totally ecology and of low costs, I've tested 3 circuits with full results

1) Discharging a condenser in a carbon rod

When a condenser is discharged in a carbon rod acelerated electrons hit the carbon atoms in a fusion reaction creating Boron in the following reaction

C + e = B

For this process is needed a fews Kilo-electronvolts (Kev) of energy powered for the condenser bank

But that Boron atom is a inestable isotop and desintegrates in the original Carbon atom in a reversible reaction

B = C + e

This reaction liberates about 13 Mev, and liberates the same electron used for the first reaction but with more energy in a way of beta radiation.

Other detail is than for each 100000 atoms is bombarded for this electrons discharge of Carbon only one go in this nuclear reaction, this is know in physics as the coefficient of effectiveness.

For a initial volume of carbon rod there is a minimal energy for start this process calculated determinated for the condenser bank and can get that from a single battery, when this nuclear process begin, electrons in form of beta radiation can be collected for a toroidal coil arround of the carbon rod, that toroid must be in the principle polarized with a little current for align the magnetic dipoles in the carbon rod for help the process.

My results was get in the external toroid about 6 KW in my firsts tests and then autopowereds devices at 110 VAC, 60 Hz and 220 VAC, 50 Hz , and I've published some results in a web site, but in spanish http://econuclear.tk

This single nuclear circuit may be the used for Nikola Tesla in 1931 for power his electric car, because he use a little circuit keep in the radio box and have 2 carbon rods labeled "Here is the power".

2) A magnetic version of the before mentioned discharge device I build using the know nuclear magnetic resonance phenomena, all atoms have a nuclear precesion known as the Larmor precesion frequency, his value for a magnetic field of 0,5 Teslas is about 21 MHz, this suggest than if we create a magnetic circuit tuned to this frequency by the quantum relation $E = h * f$, the nucleons proton-neutron area break and there is a nuclear desintegration and energy liberation.

I test a common iron rod and place 3 coils, one for the polarization field of 0,5 Teslas, another for generate the resonance at 21 MHz and a third for get de power, in my firsts tests I get about 10 KW with the starting polarization and oscillator using less than 100 watts, and autopowered devices to 220 VAC, 50 Hz and 110 VAC, 60 Hz, I see the frequency output is the tuning difference between the resonance Larmor frequency and the external oscillator, thats say if the nuclear resonance is in 21 MHz and the oscillator was at 21,001 MHz the output power frequency is in 1 KHz , I see in this magnetic circuit there is a desintegration of the Fe atom in a isotope for a delay of time for reciver his initial state. This method is used in medicine but not used for energy generation and too many more single than the here shown system use Uranium , this is an ecologyc device and low cost in comparation to that, I wait upload this to the before web site I mentioned.

3) Discharge in gases, I've build a gas version of the carbon rod discharge version for proof an aditional phenomena only known in gases discharge, I use a common fluorescent lamp of 8 watts, a battery generator of high voltage with voltage doubler, a condenser discharge into the tube when his voltage exceed the breakdown avalanche state. I can get from the battery about 2 watts but the tube light at full

power, thats say 4 times the power of the source Russians work with the SGD (Self generating discharge) in gases for nuclear reactions of the accelerated electrons with the gas atoms

Very single circuit , an oscillator a doubler with a discharge condenser

All this circuits shown there is single electric and electronics circuits, of very low costs get nuclear reactions such as in the nature there is spontaneous nuclear reactions in lighting discharges, carbono 14,etc,.....

Any question to this email I can answer   gigawattgratis@123mail.cl

Speedy23 * Newbie
Re: Single circuits generate nuclear reactions
October 13, 2006

Seems very similar to the Vallee synergetic generator duplicated by JLNaudin

Kator01 * Hero Member
October 14, 2006

I know this one. No, the valle-stuff is something total different.

Koen1 * Hero Member
April 09, 2008

Well then please explain what is so totally different about it? It does seem remarkably similar to the Valle synergetic process as described on Jean Naudins website... untill I hear what is supposed to be so totally different about it, I'm going to assume it is the same thing. After all, they are both tallking about pumping several KeV into a Carbon rod, having something happen, and getting several MeV out of the rod again. And they are also both talking about the C turning into a B isotope, which decays back into C again while releasing excess energy. Sounds crazy, but also very similar.

exnihiloest * Full Member

Right. In this paper (in french): http://franckvallee.free.fr/localhost/plain/content/download/137/535/file/Science%20&%20vie.PDF it is said page 3: "with an efficiency of 10-5 (reaction of 1 atom on 100,000) and a global performance of 20% the replenishment of 12C from 12B disintegration gives 8 KW per gram". A similar setup to this from Tesla_2006 is showed page 4. It is said that OU appears only when the current in the coil around the carbon rod, provided through the "rh?ostat", is above a certain threshold. Then the output current is 4 times that given by the capacitor discharge. Tesla_2006's setup seems to be a plagiarism.

Feynman * Moderator * Hero Member
May 01, 2008

You have duplicated this? What voltage and current did you use for the pulse into the carbon rod? Did you use mechanical switching or MOSFET/IBGT? Does the rod need to be a specific type of carbon?

As for the collector, this is simply the torroid with a small current bias? Also, what do you mean "with and without the B-field"? Is this referring to the current bias on the torroid, provided by a small battery?

UncleFester * Jr. Member
May 01, 2008

I used 30 VDC power supply and ran it into some 40,000uF caps (2) and used a mosfet switcher, gate driven by TC4420 gate driver. You gotta watch the energy levels though. I started raising the voltage and got some scary large output on the torroid. It became clear that in order to run continuously I would need a very large gauge winding on the toroid in order to handle the pulses. The first setup was a small 1/8" tungsten rod (Thoriated) and a 1/4" carbon rod. I moved up to 3/8" Tungsten rod and 1/2" carbon rod and that's when things got really fun. Geiger counter started to really tick at that point. I shielded everything with aluminum after that just to be safe. Thin aluminum appears to stop the B-radiation easily.

Answers:
1.Yes, Mosfet switcher
2. I got my carbon here: **http://www.tedpella.com/carbon_html/carbon1.htm**
3. Torroid was setup just like JLN's with current shunt and separate meter to read peak pulse current and voltage
4. B-field is the field that aligns the molecules in the carbon rod, this increases the effect tens, hundreds, or even thousands of times over no B-field. The B-field is simply a coil wound around the carbon rod and a straight DC current run through it during the firing of the spark gap (Tungsten to Carbon gap).
Please read and re-read the JLN experiements on the VSG system. It explains much better than I and has very good images of everything. I will send you a photo of my setup if you like, it's too big to post here.

http://jlnlabs.online.fr/vsg/index.htm

This is the most promising technology I have seen in more than 15 years of OU research/experiments! This paired with a high voltage pulse motor should be able to power any vehicle or home. My next step is to add multiple VSG's and get a large generator working on a pulse motor.

Feynman * Moderator
May 01, 2008

Okay thanks, I actually went and read JLN's stuff and it makes a lot more sense now. From what I can tell however, he did not achieve COP>1, although that would seem to be rather trivial considering the large amounts of power available. As for self-powering, I am curious why you are going the pulse motor route? Wouldn't it be possible to switch the current output of the collector toroid back into a capacitor bank (say, via IBGT), for a fully solid-state method of power storage/conversion?

UncleFester * Jr. Member
May 02, 2008

Minimum of two times output versus input. That also takes into account time period (current), voltage and total capacitor input VS time. I'm sure there are others working on it quietly, it's too damn good to pass up if used with a HV pulse motor I.E. Gray. The amazing fact is that the reaction becomes a compounding equation based on how much voltage potential is used in the test. Anything above 100 volts or so and you end up with Kiloamperes and at least three times output versus input. Can you imagine what a Gray circuit would do under the same circumstances? You are looking at 10uF charged to 3KV and you might have problems containing that much beta radiation, and the output I can guarantee would be in the 100's of kilowatts output for single digit kilowatt input.

Remember that Gray's system (which I've also built) was NOT this high of an energy gain. The engine would run the equivalent of 500 miles before the batteries needed to be recharged (granted it was only 4-60AH batteries), so it was NOT overunity. The big difference here is that Gray was seeing the same effect as the VSG, but only tenths of a percent of the energy gain because he was not using the B-field on his carbon rod, and thus with this massive energy gain of the VSG we should have a 100HP high voltage pulse motor that recycles charge just like Gray's system BUT with a massive lower voltage pulse in the hundreds of amperes back the batteries as a side effect. In this case you can clearly see you have have a car that should a minimum have a range of 1000's of miles possible 5000 or more miles before the small bank needed to be recharged.

Furthermore the power supply for this system is simplified to only require a IGBT, or other high current device to discharge the capacitor bank, but at much lower voltages. I have 1200V @ 200 Ampere IGBT's here just for that purpose. The only problem I can see so far is that the carbon and or tungsten rods would need to be resurfaced so that the glazing that happens does not eventually ruin the conduction across them. You would also need to switch banks back and forth just like the Gray system in order to avoid problems with the sensitive switching devices and it would need a decent amount of shielding for the beta radiation (gamma and alpha is not a problem in this design). And yes, the whole system could run on capacitors but they would need to be huge and made for high current pulse applications. Not sure if a bank of super caps could be wired in series and handle the abuse this system would dish out or not.

Koen1 * Hero Member
May 02, 2008

@UncleFester: Naudins experiments show that the version he tested went slightly unstable when the tungsten electrode got covered in carbon dust from the hV spark discharges... He then needed to remove the electrode and clean it, and then it worked nice and smooth again. Naudin also mentions that free "gaseous" carbon atoms must be available for the Protelf process to work efficiently. What are your experiences with carbon dust coating the cathode and hindering spark discharges? And did you use the spark gap method shown by Naudin, or did you use some other method? I ask because I wonder if it also works if we do away with the spark gap and pump a hV pulse directly throught the carbon rod.

Feynman * Moderator

May 02, 2008

You need the spark gap to get the carbon into a gaseous phase. It is a precondition for the reaction. One solution may be to place the rods parallel so that the spark gap is spread on a larger area on the carbon surface.

UncleFester * Jr. Member
May 02, 2008

Yes, this is a problem with this particular reaction between these particular elements, but look at the other elements that are hundreds of times more powerful than this reaction, in fact the reaction between carbon is the LOWEST energy potential of all the reactions at only 8KW/g. For instance lithium with an energy potential of 1,910,000 GW/g is insanely huge and should not suffer the same issues as the carbon. Also Nitrogen, Helium and Oxygen are listed as high energy potential as well. If this could be figured out in terms of the B-field alignment of these gases then it is solved and not just solved, but at hundreds of times the energy gain of the original carbon reaction!

Yes, the carbon rod being constantly vaporized is a problem. Simple mechanical automated means could be used to quickly clean the spark gap materials but a gas or liquid might be easier to deal with in the long run. I only ran a dozen one-shot runs like JLN did, so I only saw a minimal amount of reduction during those runs, but pulsing a thousand times per second or more would require some sort of cleaning system for carbon.

[&c...]

Kalafian VARTAN
Electric Perpetual Motion

GB2130431
Method and Means for Producing Perpetual Motion with High Power

1984-05-31
Inventor(s): KALFAIAN MEGUER VARTAN
Classification: - international: G01R33/60; G21K1/00; H01S3/09; G01R33/60; G21K1/00; H01S3/09; (IPC1-7): H01S3/14 ;- European: G01R33/60; G21K1/00; H01S3/09

Abstract -- The perpetual static energies, as provided by the electron (self spin) and the permanent magnet (push and pull) are combined to form a dynamic function. Electrons emitted from a heated coil F are entrapped permanently within the central magnetic field of a cylindrical

magnet M5. A second magnet M6, in opposite polarity to the poles of the electrons causes polar tilt, and precession. This precession radiates powerful electromagnetic field to a coil L between the cylindrical magnet and a vacuum chamber C - wound in a direction perpendicular to the polar axes of the electrons. Alternatively, the electromagnetic radiation is emitted as coherent light. The original source of electrons is shut off after entrapment.

SPECIFICATION

Method and means for producing perpetual motion with high power

This invention relates to methods and means for producing perpetual motion. An object of the invention is, therefore, to produce useful perpetual motion for utility purposes.

Brief embodiment of the invention

The electron has acquired self spin from the very beginning of its birth during the time of creation of matter, and represents a perpetual energy. But self spin alone, without polar motion is not functional, and therefore, useful energy cannot be derived therefrom. Similarly, the permanent magnet represents a perpetual energy, but since its poles are stationary, useful energy cannot be derived from it.

However, the characteristics of these two types of static energies differ one from the other, and therefore the two types of energies can be combined in such a manner that, the combined output can be converted into perpetual polar motion.

In one exemplary mode, a cylindrical vacuum chamber having a filament and a cathode inside, is enclosed within the central magnetic field of a cylindrical permanent magnet, the magnetization of which can be in a direction either along the longitudinal axis, or from the center to the circumferential outer surface of the cylinder. When current is passed through the filament, the emitted electrons from the cathode are compressed into a beam at the center of the cylindrical chamber by the magnetic field of the cylindrical magnet. Thus, when the current through the filament is shut off, the electrons in the beam remain entrapped within said magnetic field permanently.

In such an arrangement, the poles of the electrons are aligned uniformly. When a second permanent magnet is held against the beam in repelling polarity, the poles of the electrons are pushed and tilted from their normal longitudinal polar axes. In such tilted orientations, the electrons now start wobbling (precessing) in gyroscopic motions, just like a spinning top when it is tilted to one side. The frequency of this wobbling (precessional resonance) depends upon the field strengths of the two magnets, similar to the resonance of the violin string relative to its tensional stretch. The polar movements of the electrons radiate electromagnetic field, which is receivable by an inductance for conversion into any desired type of energy. Because of the uniformly aligned electrons, the output field is coherent, and the output is high.

Observed examples upon which the invention is based

The apparatus can best be described by examples of a spinning top in wobbling motion. Thus, referring to the illustration of Figure 1, assume that the spinning top T is made of magnetic material, as indicated by the polar signs (S and N). Even though the top is magnetic, the spin motion does not radiate any type of field, for reception and conversion into a useful type of energy. This is due to the known fact that, radiation is created only when the poles of the magnet are in motion, and in this case, the poles are stationary.

When a magnet M1 is held from a direction perpendicular to the longitudinal polar axis of the top, as shown in Figure 2, the polar axis of the top will be tilted as shown, and keep on spinning in that tilted direction. When the magnet M1 is removed, however, the top will try to regain its original vertical posture, but in doing so, it will wobble in gyroscopic motion, such as shown in Figure 3. The faster the top spins, the faster the wobbling motion will be.

The reason that the top tilts angularly, but does not wobble when the magnet M1 is held from horizontal direction, is that, the one sided pull prevents the top from moving away from the magnetic field for free circular wobble. But instead of holding the magnet M1 from the side of the top, we may also hold the magnet from a direction above the top, as shown in Figure 4. In this case, however, the polar signs between the magnet and the top are oriented in like signs, so that instead of pulling action, there is pushing action between the magnet and the top - causing angular tilt of the top, such as shown in Figure 4. The pushing action of the magnetic field from above the top is now equalized within a circular area, so that the top finds freedom to wobble in gyroscopic rotation.

The important point in the above given explanation is that, the top tries to gain its original vertical position, but it is prevented to do so by the steady downward push by the static magnetic field of the magnet M2. Thus, as long as the top is spinning, it will wobble in a steady state. Since now there is polar motion in the wobbling motion of the top, this wobbling motion can easily be converted into useful energy. To make this conversion into perpetual energy, however, the top must be spinning perpetually. And nature has already provided a perpetually spinning magnetic top, which is called, the electron - guaranteed to spin forever, at a rate of 1.5 x 1023 (one hundred fifty thousand billion billion revolutions per second).

Brief description of the drawings

Figure 1 illustrates a magnetic spinning top, for describing the basic principles of the invention.

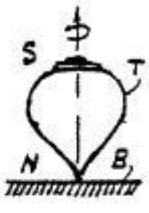


Fig. 1

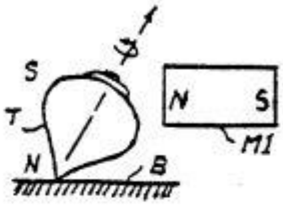


Fig. 2

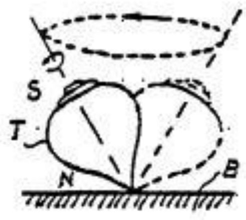


Fig. 3

Figure 2 illustrates a controlled top for describing the basic principles of the invention.

Figures 3 and 4 illustrate spinning tops in wobbling states for describing the basic principles of the invention.

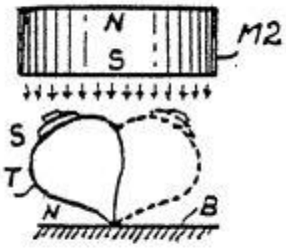


Fig. 4

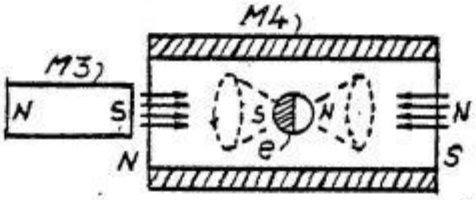


Fig. 5

Figure 5 shows how an electron can be driven into wobbling state by control of permanent magnets, according to the invention.

Figure 6 is a practical arrangement for obtaining perpetual motion.

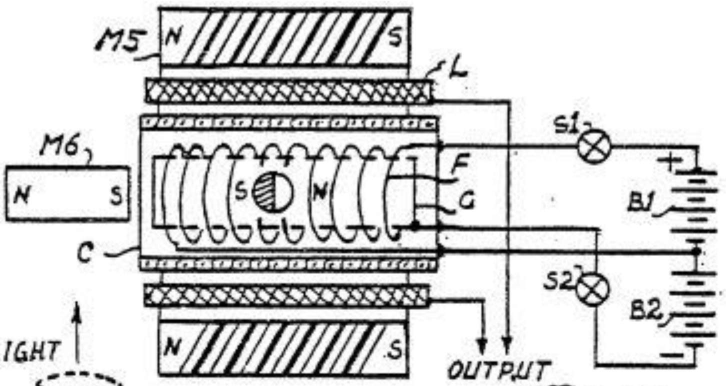


Fig. 6

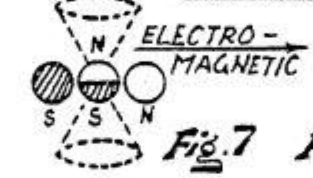


Fig. 7

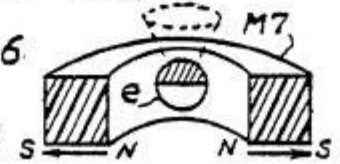


Fig. 8

Figure 7shows a natural atomic arrangement for obtaining precessional resonance.

Figure 8 shows a different type of electron trapping permanent magnet, as used in Figure 6.

Figure 9 is a modification of Figure 6; and

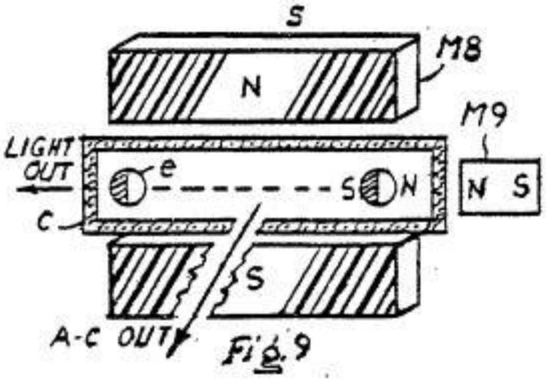


Fig. 9

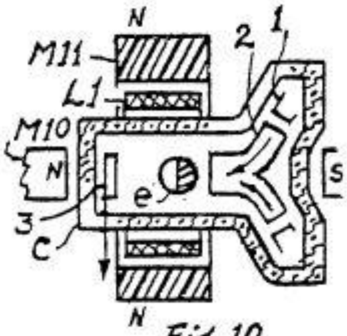


Fig. 10

Figure 10 is a modification of the electron trapping magnets, as used in Figure 6.

Best mode of carrying out the invention

Referring to the exemplary illustration of Figure 4, the spinning top T is pivoted to the base B by gravity.

In the case of the electron, however, it must be held tight between some magnetic forces. Thus, referring to the illustration of Figure 5, assume that an electron e is placed in the center of a cylindrical magnet M4. The direction of magnetization of the magnet M4, and the polar orientation of the electron e are marked in the drawing. In this case, when a permanent magnet M3 is placed at the open end of the cylindrical magnet M4, the electron e will precess, in a manner, as described by way of the spinning top. The difficulty in this arrangement is that, electrons cannot be separated in open air, and a vacuum chamber is required, as in the following:

Figure 6 shows a vacuum chamber C, which contains a cylindrically wound filament F, connected to the battery B1 by way of the switch S1. Thus, when the switch S1 is turned ON, the filament F is lighted, and it releases electrons.External of the vacuum chamber C is mounted a cylindrical permanent magnet M5, which compresses the emitted electrons into a beam at the center of the chamber.

When the beam is formed, the switch is turned OFF, so that the beam of electrons is entrapped at the center of the chamber permanently.

The permanent trapping of the electrons in the chamber C represents a permanent storage of static energy. Thus, when a permanent magnet M6 is placed to tilt the polar orientations of the uniformly poled electrons in the beam, they start precessing perpetually at a resonant frequency, as determined by the field strengths of the magnets M5 and M6.

The precessing electrons in the beam will radiate quadrature phased electromagnetic field in a direction perpendicular to the polar axes of the electrons.

Thus, a coil L may be placed between the magnet M5 and the vacuum chamber C, to receive the radiated field from the beam. The output may then be utilized in different modes for practical purposes, for example, rectified for d-c power use.

The electron beam-forming cylindrical magnet

M5, which may also be called a focusing magnet, is shown to be bipolar along the longitudinal axis. The direction of magnetization, however, may be from the central opening to the outer periphery of the magnet, as shown by the magnet M7, in Figure 8.

But the precessing magnet M6 will be needed in either case.

In the arrangement of Figure 6, I have included a current control grid G. While it is not essential for operation of the arrangement shown, it may be connected to a high negative potential B2 by the switch S2 just before switching the S1 in OFF position, so that during the cooling period of the filament, there will occur no escape of any electrons from the beam to the cathode. Also, the grid G may be switched ON during the heating period of the cathode, so that electrons are not forcibly released from the cathode during the heating period, and thereby causing no damage to the cathode, or filament.

Biological precessional resonance

Electron precessional resonance occurs in living tissue matter, as observed in laboratory tests. This is called ESR (Electron Spin Resonance) or PMR (Paramagnetic Resonance). In tissue matter, however, the precessing electron is entrapped between two electrons, as shown in Figure 7, and the polar orientations are indicated by the polar signs and shadings, for clarity of drawing.

Simulation

The arrangement of Figure 7 may be simulated artificially in a manner as shown in Figure 9, wherein, the electron trapping magnet is a pair of parallel spaced magnets M8. In actual practice, however, thestructure of this pair of magnets M8 can be modified. For example, a second pair of magnets M8 may be disposed between the two pairs, so that the directions of the transverse fields between the two pairs cross mutually perpendicular at the central longitudinal axis of the vacuum chamber. The inner field radiating surfaces of these two pairs of magnets may be shaped circular, and the two pairs may be assembled, either by physical contact to each other, or separated from each other.

Modifications

Referring to the arrangements of Figures 6, 9 and 10, when the electron is in precessional gyroscopic motion, the radiated field in a direction parallel to the polar axis of the electron, is a single phased corkscrew waveform, which when precessed at light frequency, the radiation produces the effect of light.

Whereas, the field in a direction perpendicular to the axis of the electron produces a quadrature phased electromagnetic radiation. Thus, instead of utilizing the output of electron precession for energy purposes, it may be utilized for field radiation of either light or electromagnetic waves, such as indicated by the arrows in Figure 9. In this case, the output will be coherent field radiation.

In reference to the arrangement of Figure 6, the electron emission is shown to occur within the central magnetic field of the focusing magnet M5. It may be practically desired, however, that these electrons are injected into the central field of the cylindrical magnet from a gun assembly, as shown in an exemplary arrangement of Figure 10. In this case, the vacuum chamber C is flanged at the right hand side, for mounting an electron emitting cathode 1 (the filament not being shown), and a curved electron-accelerating gun 2. The central part of this flange is recessed for convenience of mounting an electron-tilting magnet (as shown), as close as possible to the electron beam. In operation, when current is passed through the filament, and a positive voltage is applied (not shown) to the gun 2, the emitted electrons from the cathode are accelerated and injected into the central field of the magnet 11. Assuming that the open end of the gun 2 overlaps slightly the open end of the cylindrical central field of the magnet M1, and the positive accelerating voltage applied to the gun 2 is very low, the accelerated electrons will enter the central field of the magnet My 1, and travel to the other end of the field. Due to the low speed acceleration of the electrons, however, they cannot spill out of the field, and become permanently entrapped therein.

In regard to the direction in which the coil L1 is positioned, its winding should be in a direction perpendicular to the longitudinal axis of the beam to which the polar axes of the electrons are aligned uniformly in parallel. In one practical mode, the coil L1 may be wound in the shape of a surface winding around a tubular form fitted over the cylindrical vacuum chamber.

In regard to the operability of the apparatus as disclosed herein, the illustration in Figure 7 shows that the field output in a direction parallel to the polar axis of the electron is singular phased, and it produces the effect of light when the precessional frequency is at a light frequency. Whereas, the output in a direction perpendicular to the polar axis of the electron is quadrature phased, which is manifested in practiced electromagnetic field transmission.

In regard to experimental references, an article entitled "Magnetic Resonance at high Pressure" in the "Scientific American" by George B. Benedek, page 105 illustrates a precessing nucleus, and indicates the direction of the electromagnetic field radiation by the precessing nucleus. The same technique is also used in the medical apparatus "Nuclear magnetic resonance" now used in numerous hospitals for imaging ailing tissues (see "High Technology" Nov. Dec. 1982. Refer also to the technique of detecting Electron Spin Resonance, in which electrons (called "free radicals") are precessed by the application of external magnetic field to the tissue matter. In all of these practices, the electromagnetic field detecting coils are directed perpendicular to the polar axes of the precessing electrons or the nuclei.

In regard to the production of light by a precessing electron, in a direction parallel to the polar axis of the precessing electron, see an experimental reference entitled "Free electrons make powerful new laser" published in "high Technology" February 1983 page 69.

In regard to the aspect of producing and storing the electrons in a vacuum chamber, it is a known fact by practice that the electrons are entrapped within the central field of a cylindrical permanent magnet, and they will remain entrapped as long as the magnet remains in position.

In regard to the performance of obtaining precessional resonance of the electron, the simple example of a wobbling top is sufficient, as proof of operability.

Having described the preferred embodiments of the invention, and in view of the suggestions of numerous possibilities of modifications, adaptations, adjustments and substitutions of parts, it should be obvious to the skilled in related arts that other possibilities are within the spirit and scope of the present invention.

Rob VINCENT

Distributed Load Monopole (DLM) Antenna

Robert Vincent

http://www.wirelessnetdesignline.com/showArticle.jhtml?articleID=163103803
http://www.eetimes.com/;jsessionid=X2ETTT3FGOTKMQSNDLRCKHSCJUNN2JVN

Tweak to Inductive Loading Shrinks Antenna

By

R. Colin Johnson

PORTLAND, Ore. — Independent tests appear to support an inventor's claim that his skunk-works antenna design can shrink antenna size by up to 70 percent while maintaining equivalent sensitivity and increasing bandwidth.

The four-part antenna cancels out the normal inductive loading in traditional antenna designs, thereby linearizing the energy radiation along its mast and enabling its diminutive size.

"When we announced my smaller antenna design last year, I got lots of doubting Thomases worldwide. Now, with the help of the Naval Undersea Warfare Center and its antenna test range on Fishers Island, N.Y., we have independent test results to back up our claims," said inventor Rob Vincent, a research engineer in the University of Rhode Island's physics department.

Vincent calls his invention a distributed-load monopole (DLM) antenna. The novel design uses a helix plus a load coil to shrink the size of a normal quarter-wave monopole. According to Vincent, his design can shrink the size of every antenna in use today, from the tiny gigahertz units inside cell phones to giant, kilohertz AM antennas. For instance, a 3-inch-long gigahertz antenna could be shrunk to an inch, and a 300-foot-tall AM band antenna could be reduced to 80 feet high.

In the tests, various DLM antennas from Vincent's portfolio were tested from 7 to 27 MHz. The results indicated that equivalent performance was achieved with antennas 30 to 70 percent shorter than an ideal quarter-wave antenna.

"Basically I am utilizing the distributed capacitance around the antenna to reduce the normally required inductive loading," Vincent said.

Vincent spent almost 30 years at Raytheon Co. and at KVH Industries (Middletown, R.I.), before becoming a research engineer at the University of Rhode Island (Kingston). He began experimenting with antennas there as a skunk-works project.

Vincent chose the Navy's Fishers Island Antenna Complex to test his design because it is located in a low-lying, remote coastal area free from radiation obstructions and man-made electromagnetic interference. The complex offers a 1-mile range over seawater between two sites for testing antennas ranging in frequency from 2 to 30 megahertz. All gain measurements were done relative to an ideal quarter-wave monopole antenna.

Vincent's antenna designs were tested using the official regime the Navy uses to certify its antennas. Vincent's Plano Spiral Top Hat antenna, at 7 MHz, was shown to have equal sensitivity to a normal quarter-wave antenna but at 50 percent the quarter-wave unit's size. In addition, bandwidth of the Vincent design was nearly twice as wide as that of the quarter-wave unit.

---

http://lists.contesting.com/pipermail/topband/2005-August/022116.html

Topband: May 2005 EET article about the DLM

Tom Rauch w8ji at contesting.com

(Aug 20 07)

The test antenna was a 7MHz monopole, 50% of the normal quarter-wave size. Now one thing from an illustration that begs more information was the ground system. It shows 150' radials, which appear to terminate at the sea water's edge. There is about a mile of seawater between the test antenna and the calibrated receive antenna.

The article concludes; "Vincent's antenna designs were tested using the official regime the Navy uses to certify antennas. Vincent's Plano Spiral Top Hat antenna, at 7MHz, was shown to have equal sensitivity to a normal quarter-wave antenna but at 50% the quarter-wave unit's size. In addition, bandwidth of the Vincent design was nearly twice as wide as that of the quarter-wave unit."

The initial Vincent claim read almost like CFA, CTHA, Fractal, and E-H antenna claims. A very short antenna with makeshift construction was claimed to produce better than full size performance. The claims have evolved now to 50% shortening over a nearly perfect ground produces equal FS.

The difference in FS between a conventional 1/4 wl tall antenna and a 1/8th wl tall antenna is within measurement error when the antenna is over a very good ground system and when it uses a good loading inductor regardless of where loading is placed. Brown, Lewis, and Epstein knew that in the 1930's.

As a matter of fact even with a loading coil Q as low as 250 (typically like air core #16 wire) and using base loading there is less than 1dB difference between a 1/8th wave and quarter wave antenna!

The apparent endorsement of the DLM antenna by the U of RI does prove one thing....we need to work on our educational system and stop the backslide in science. The U of RI and Vincent are now at the level of early 20th century antenna technology.

73 Tom

---

http://www.ieee.org/portal/pages/products/whats-new/wncomm/wncomm0605.html

ENGINEER DRASTICALLY SHRINKS ANTENNA, MAINTAINS SENSITIVITY AND BANDWIDTH

A research engineer at the University of Rhode Island has invented an antenna 70 percent smaller than conventional designs, but which has comparable sensitivity and increased bandwidth. The antenna, called a distributed-load monopole (DLM), uses a helix and a load coil to shrink the size of a normal quarter-wave monopole. In testing research engineer Rob Vincent's antenna design, which cancels out the normal inductive loading, the U.S. Navy found that the antenna achieved equivalent performance with antennas 30 to 70 percent shorter than an ideal quarter-wave design. Read more:
www.wirelessnetdesignline.com/showArticle.jhtml?articleID=163103803

---

http://www.eetimes.com/showArticle.jhtml?articleID=21600147

Antenna design boosts efficiency per given size

R. Colin Johnson
EE Times
(06/14/2004 9:00 AM EST)

Portland, Ore. - A four-year skunk works effort at the University of Rhode Island in Kingston has cut the size of an antenna by as much as one-third for any frequency from the kHz to the GHz range. Using conventional components, the four-part antenna design cancels out normal inductive loading, thereby linearizing the energy radiation along its mast and enabling the smaller size.

"The DLM [distributed load monopole] antenna is based on a lot of things that currently exist," said the researcher who invented the smaller antenna, Robert Vincent of the university's physics department, "but I've been able to put a combination of them together to create a revolutionary way of building antennas. It uses basically a helix plus a load coil."

The patent-pending design could transform every antenna-from the GHz models for cell phones to the giant, kHz AM antennas that stud the high ground of metropolitan areas-Vincent said.

For cell phones, for example, Vincent said he has a completely planar design that is less than a third the size of today's cell phone antennas. And those 300-foot tall antennas for the 900-kHz AM band that dominate skylines would have to be only 80 feet high, with no compromise in performance, using Vincent's design, he said.

"When looking at these antennas, you pretty much have to forget everything you ever knew about antennas and keep an open mind, because some of the things I have done are very radical," said Vincent. "With my technique, I reduce the inductive loading that is normally required to resonate the antenna by as much as 75 percent . . . by utilizing the distributed capacitance around the antenna."

NIMBY factor

Vincent, an amateur radio operator, embarked on his project after he moved to a new neighborhood and his neighbors objected to the 140-foot tall antenna he planned to erect for a quarter-wave 1.8-MHz transmitter. So he surveyed the literature, took the best of the best designs and combined them into a 21-MHz test antenna that was 18 inches high, as opposed to the 12- to 24-foot height of the antennas normally used for that band. Building on that work, he eventually devised a 46-foot-tall 1.8-MHz antenna his neighbors could accept.

"I looked at all the different approaches used to make antennas smaller, and there seemed to be good and bad aspects" to each, Vincent said. "A helix antenna is normally known to be a core radiator, because the current profile drops off rapidly; they are just an inductor, and inductance does not like to see changes in current, so it's going to buck that. "But what I found was that for any smaller antenna, if you place a load coil in the middle you can normalize and make the current through the helix unity; that is, you can maximize it and linearize it."

Vincent has verified designs from 1.8 MHz to 200 MHz by measuring and characterizing the behavior of his DLM antenna compared with a normal quarter-wave antenna of the same frequency. He found that many of the disadvantages of traditional antennas were not problems for the much lighter inductive loading in a DLM.

"For instance, in a normal quarter-wave antenna the current continually drops off in a sinusoidal shape, but these antennas don't do that," said Vincent. "The current at the top of the antenna is 80 percent of the current at the base."

The reason more current can be pumped into a DLM design than in a conventional equivalent at the same size, Vincent theorized, is that the DLM distributes energy more evenly along the antenna's length. Using a DLM antenna one-third to one-ninth the size of standard quarter-wave antenna, he measured nearly 80 percent efficiency, when conventional wisdom would dictate that an antenna the size of a DLM should be only 8 to 15 percent efficient.

To check his theory, Vincent analyzed and compared the current profiles, output power and a score of other standard tests for measuring antenna performance. All measurements were in reference to comparative measurements made on a quarter-wave vertical antenna for the same frequency, on the same ground system and same power input.

"I was able to increase the current profile of the antenna over a quarter-wave by as much as two to 2.5 times," said Vincent. "That is, the magnitude of the current in these antennas is two to 2.5 times larger than for a normal quarter-wave antenna.

"However, if you measure the current profiles for both antennas and integrate the area under the curves, you come out with the same volume, indicating that the much smaller antenna is filling the airwaves with the same amount of radio energy."

Vincent plans to publish the results in a scientific journal soon, but with a patent decision imminent, he couldn't hold off a preliminary announcement that his theories regarding DLM antennas were being supported by the experimental results. According to the researcher, the DLM antenna profiles look just like the theoretically ideal antenna profile-operating on a single frequency with very high efficiency, while not producing any interfering frequencies or wasting thermal energy.

"The phase and amplitude of this antenna are a perfect mimic of the universal resonance curve," said Vincent. "This makes the antenna completely predictable well beyond its bandwidth. Another unique feature is that these antennas have no harmonic response whatsoever; as a matter of fact, to a certain extent I used filter synthesis to design the antennas."

Nondescript

To the naked eye, the DLM antenna looks unremarkable, said Vincent, who jokes that you could put a flag on his antennas and they would look like flagpoles. But under the skin are four main sections to the antenna (from bottom to top): an inductive helix, a capacitive midsection, an inductive load coil and a capacitive top section. The different lengths of the mid- and top sections give them different resonant frequencies, which, together with the exact values of inductance and capacitance, define the antennas design specifications for any desired frequency.

"The technology is completely scalable: Take the component values and divide them by two, and you get twice the frequency; take all the component values and multiply them by two, and you are at half the frequency," said Vincent. "There are two poles in the antenna, and where I place the poles in relation to one another-how much I bring the two resonant frequencies together or spread them apart-enables me to emulate different antennas, from a quarter-wave to a five-eighths wave."

Vincent said no existing modeling software could adequately model his antenna design. So he rolled his own simulation with Mathcad, making use of some of Mathcad's filter design algorithms for the inductive/capacitive-canceling effect.

"Eight years ago, antenna design was 90 percent black magic and 10 percent theory," said Vincent. "But now, with my design, they are 10 percent black magic and 90 percent theory."

The antennas are also well-behaved, with wide bandwidth and easy to connect to standard equipment, according to Vincent. For instance, they can directly connect to standard 50-ohm antenna inputs without any adapters.

"All I have to do is tap the helix at its base, and you get a perfect 50-ohm match with out any lossy networks [as are required for other advanced antenna designs]," said Vincent.

For the future, Vincent is moving up into the GHz bands for use with cell phones and radio-frequency ID equipment. A problem in the past has been that as components are downsized, they become too small to utilize standard antenna materials. At 1 GHz, for example, the helix is only eight-thousandths of an inch in diameter and requires more than 100 turns of wire.

"So I came up with a new way of developing a helix for high frequencies that is a fully planar design; it's a two-dimensional helix," said Vincent.

With the new helix design, Vincent has built a prototype 7-GHz antenna that he claims is indistinguishable from a quarter-wave antenna in all but its size. "Because the new design is completely planar, we could crank these out using thin-film technologies," Vincent said.

Vincent received the 2004 Outstanding Intellectual Property Award from the University of Rhode Island's Research Office, joint applicant for the patent.

---

http://www.newswise.com/articles/view/511437/

Navy Gives Small Antenna Big Results

Newswise — The news last June that Rob Vincent, an employee in the Physics Department at the University of Rhode Island, had shrunk the antenna size without shrinking its effectiveness, produced a large group of Doubting Thomases worldwide. Prove it, they demanded.

Vincent and URI, with the help of the Naval Undersea Warfare Center and its antenna test range on Fishers Island, N. Y., have done just that.

On March 31, 14 versions of Vincent’s Distributed Load Monopole (DLM) antennas were put through a battery of validation tests. The results exceeded Vincent’s and URI’s expectations. Smaller is better.

The Navy center responds to a wide variety of military and commercial requests for testing antennas at its Fishers Island over water range, the only such range of its kind in the world. Water provides a better path for transmission and reception than land. The site is located on a low-lying, remote coastal area, free of local interference.

The Fishers Island range is a far-field ground wave antenna test range capable of measuring the performance of antennas ranging in frequency from 2 to 30 megahertz. Gain measurements are done relative to an ideal quarter wave monopole antenna. The URI antennas were tested using the same methods and instrumentation as those used to test and certify Navy antenna systems.

Industry regards such testing as dependable as science permits and often includes the center’s data with products to assure customers of its performance specifications.

Vincent’s Plano Spiral Top Hat antenna at 7 megahertz is half the size of a normal quarter-wave antenna operating at that frequency. The URI antenna gain matched the performance of the ideal quarter-wave antenna, and its bandwidth was nearly twice as wide. This type of antenna has multiple uses, including military, marine, amateur radio communications and AM broadcasting. In addition, the gain of Vincent’s capacity Top Hat DLM antenna, which incorporates a helix, a load coil, a capacitive top hat utilizing radial spokes at the top of the antenna and a horizontal plane was nearly identical to the ideal quarter wave antenna. Its bandwidth was greater than 5 percent of the operating frequency and the antenna is more than 70 percent shorter than an ideal quarter wave antenna.

Vincent’s standard DLM antennas with a standard helix and load coil were also tested at various frequencies. All exhibited gains nearly equal to the ideal antenna with bandwidths of 3 to 10 percent. The antennas were 33 to 40 percent shorter.

More than 200 businesses, companies, and government agencies have contacted URI seeking information for automotive, marine, and military applications, among others, since the antenna announcement last year. A patent is pending on Vincent's technology. The inventor has made the University of Rhode Island and its Physics Department partners that will benefit from any revenue his invention earns.

URI is close to securing several license agreements. In addition, prototypes have been developed for numerous applications.

View the test data on URI’s antenna technology online. Visit the U.S. Navy’s testing facility online for more information.

---

http://www.electronicproducts.com/ShowPage.asp?FileName=olrr01.aug2005.html

Antenna Technology Shrinks Size, Not Effectiveness

by

Ralph Raiola

Tests at the Naval Undersea Warfare Center's antenna test range have shown that a new antenna technology, dubbed Distributed Load Monopole (DLM), can shrink antenna sizes without loss of performance. Developed last year by Rob Vincent, a technician in the University of Rhode Island's physics department, the technology could produce chip-mountable cell-phone antennas that can be applied to WLAN applications, and promises to at least double the range of walkie-talkies used by police, fire, and other municipal personnel.

The DLM antenna technology promises antennas up to 70% shorter than an ideal quarter-wave antenna.

Several versions have been developed, including the Plano Spiral Top Hat, a 7-MHz version that is half the size of normal quarter-wave devices operating at that frequency. The device's gain matched the performance of the ideal quarter-wave antenna, and its bandwidth was nearly twice as wide.

The Top Hat DLM antenna incorporates a helix, load coil, and capacitive top hat using radial spokes at the top. More than 70% shorter than an ideal quarter-wave antenna, its bandwidth is greater than 5% of the operating frequency.

Standard versions featuring a standard helix and load coil were also tested at various frequencies, all exhibiting gains nearly equal to the ideal antenna with bandwidths of 3% to 10%. The antennas were 33% to 40% shorter.

The technology is also being focused toward applications such as naval ships, baby monitors, RFID, and portable antennas for military equipment. The university is close to securing several license agreements and prototypes have been developed for numerous applications. For more information, call Rob Vincent of the University of Rhode Island at 401-874-2063 or visit **http://www.uri.edu/news/vincent/report05**.

---

http://www.uri.edu/news/vincent/report05

Table of Contents: Test Report -- **http://www.uri.edu/news/vincent/report05/testreport.pdf**
NUWC Report -- **http://www.amta.org/StaticFiles/PDF/amta_2002/session%2013/a2002-13-02-072.pdf**
Antenna Test Data (.zip) -- **http://www.uri.edu/news/vincent/report05/data.zip**

US Patent # 7,187,335

System and Method for Providing a Distributed Loaded Monopole Antenna

Robert J. Vincent

(March 6, 2007)

Abstract -- A distributed loaded antenna system including a monopole antenna is disclosed. The antenna system includes a radiation resistance unit coupled to a transmitter base, a current enhancing unit for enhancing current through the radiation resistance unit, and a conductive mid-section intermediate the radiation resistance unit and the current enhancing unit. The conductive mid-section has a length that provides that a sufficient average current is provided over the length of the antenna.

US Cl. **343/722** ; 343/749; 343/841
Intl. Cl. **343/722** ; 343/749; 343/841

References Cited:
U.S. Patent Documents: 3984839 // 4095229 // 4229743 // 4442436 // 4564843 // 4734703 // 5016021 // 5065164 // 5134419 // 5406296 // 5521607 // 5856808 // 5955996 // 6054958 // 6208306 //
6437756 // 6791504

Other References:

Harrison, Jr., "Monopole with Inductive Loading," IEEE Transactions on Antennas and Propagation, Sandia Corporation, Albuquerque, NM, Dec. 26, 1962, pp. 394-400. cited by other .
Fujimoto et al., "Small Antennas," Research Studies Press Ltd., Letchworth, Hertfordshire, England & John Wiley & Sons Inc., New York, 1987, pp. 59-75. cited by other .
"Now You're Talking!: All You Need to Get Your First Ham Radio License," The American Radio Relay League, Inc., Second Edition, Apr. 1996, Chapter 7, pp. 16-17. cited by other .
"The Offset Multiband Trapless Antenna (OMTA)," QST, vol. 79, No. 10, American Radio Relay League, Inc., 1996, pp. 1-11. cited by other .
"Mounting Tips for the Stealth II Series HF Mobile Antennas," Version 3.32, Aug. 2002, pp. 1-9. cited by other .
Nakano et al., "A Monofilar Spiral Antenna Excited Through a Helical Wire," IEEE Transactions of Antennas and Propagation, vol. 51, No. 3, Mar. 2003, pp. 661-664. cited by other .
"Helix Antenna," http://library.kmitnb.ac.th/projects/eng/EE/ee0003e.html, no dated?. cited by other .
T. Simpson, "The Dick Loaded Monopole Antenna," IEEE Transactions of Antennas and Propagation, vol. 52, No. 2, Feb. 2004, pp. 542-545. cited by other.

Description

BACKGROUND

The present invention generally relates to antennas, and relates in particular to antenna systems that include one or more monopole antennas.

Monopole antennas typically include a single pole that may include additional elements with the pole. Non-monopole antennas generally include antenna structures that form two or three dimensional shapes such as diamonds, squares, circles etc.

As wireless communication systems (such as wireless telephones and wireless networks) become more ubiquitous, the need for smaller and more efficient antennas such as monopole antennas (both large and small) increases. Many monopole antennas operate at very low efficiency yet provide satisfactory results. In order to meet the demand for smaller and more efficient antennas, the efficiency of such antennas must improve.

There is a need, therefore, for more efficient and cost effective implementation of a monopole antenna, as well as other types of antennas and antenna systems.

SUMMARY OF THE INVENTION

In accordance with an embodiment, the invention provides a distributed loaded antenna system including a monopole antenna. The antenna system includes a radiation resistance unit coupled to a transmitter base, a current enhancing unit for enhancing current through the radiation resistance unit, and a conductive mid-section intermediate the radiation resistance unit and the current enhancing unit. The conductive mid-section has a length that provides that a sufficient average current is provided over the length of the antenna.

BRIEF DESCRIPTION OF THE DRAWINGS

The following description may be further understood with reference to the accompanying drawings in which:

FIG. 1 shows a diagrammatic illustrative electrical schematic view of a distributed loaded monopole antenna in accordance with an embodiment of the invention;

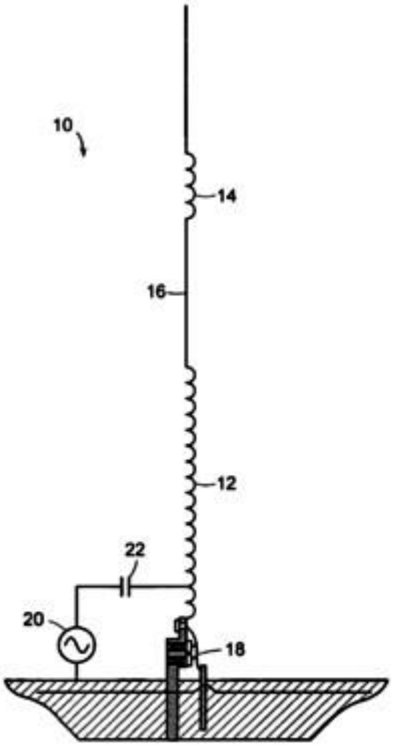


FIG. 1

FIG. 2 shows a diagrammatic illustrative side view of a distributed loaded monopole antenna in accordance with an embodiment of the invention;

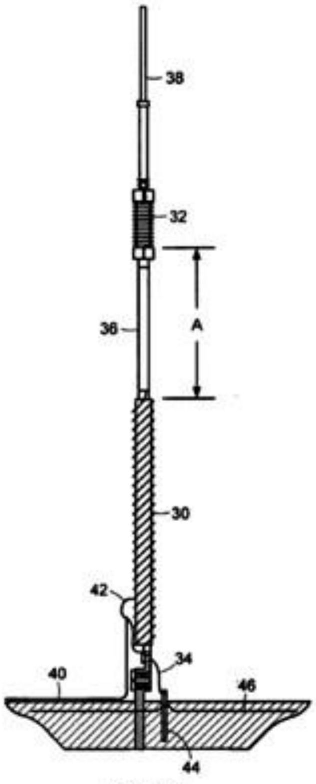


FIG. 2

FIG. 3 shows a diagrammatic illustrative graphical view of average current distribution over length of an antenna in accordance with an embodiment of the invention;

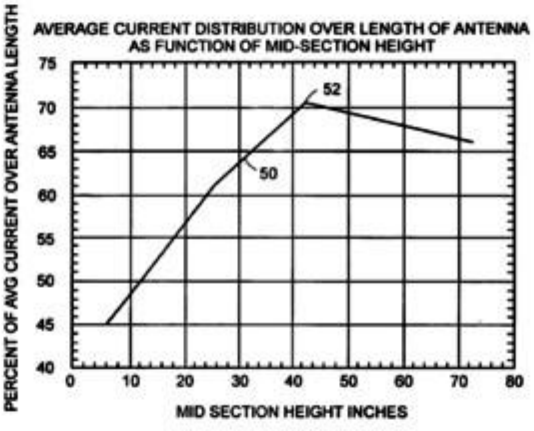


FIG. 3

FIG. 4 shows a diagrammatic illustrative top view of a top unit for use in accordance with an embodiment of the invention;

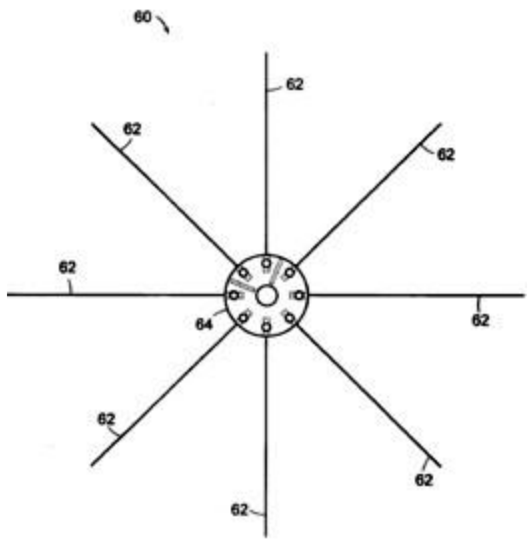


FIG. 4

FIG. 5 shows a diagrammatic illustrative side view of an antenna in accordance with an embodiment of the invention employing a top unit as shown in FIG. 5;

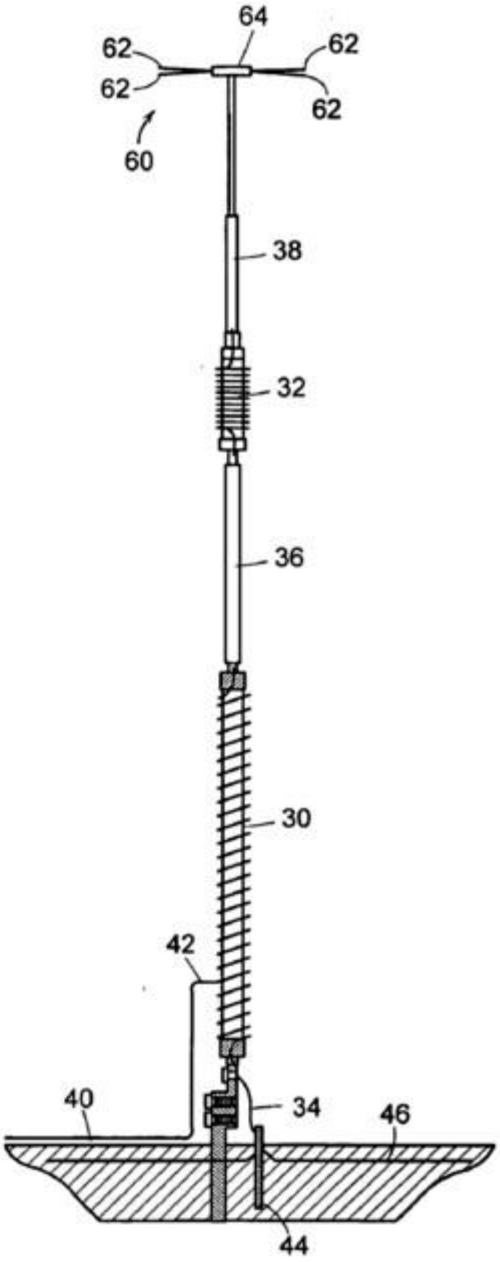


FIG. 5

FIG. 6 shows a diagrammatic illustrative top view of another top unit for use in an antenna in accordance with a further embodiment of the invention;

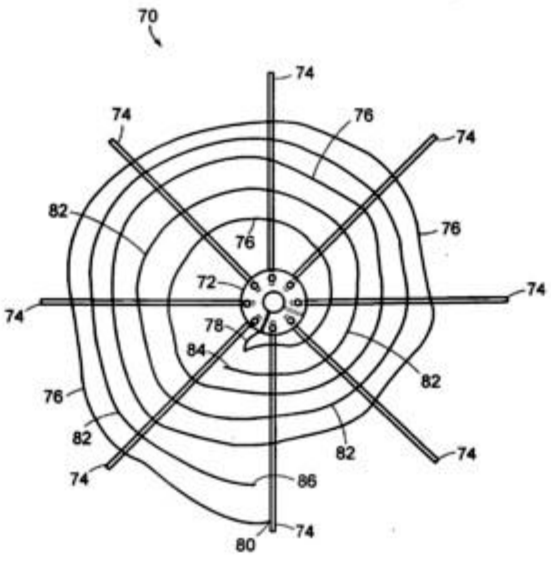


FIG. 6

FIG. 7 shows a diagrammatic illustrative side view of a radiation resistance unit for use in an antenna in accordance with an embodiment of the invention;

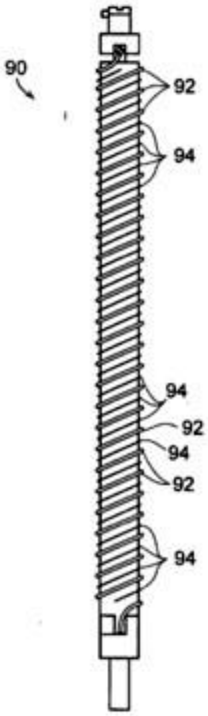


FIG. 7

FIG. 8 shows a diagrammatic illustrative side view of an adjustment unit for use in an antenna in accordance with an embodiment of the invention;

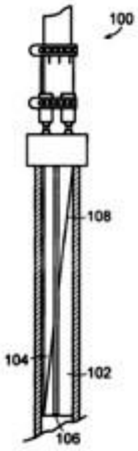


FIG. 8

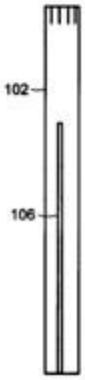


FIG. 9

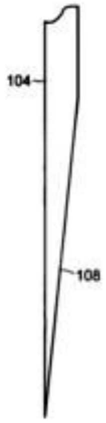


FIG. 10A

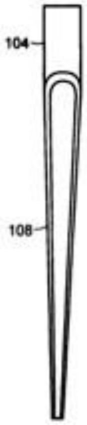


FIG. 10B

FIG. 9 shows a diagrammatic illustrative side view of the slotted tube shown in FIG. 8;

FIGS. 10A and 10B show diagrammatic illustrative side views of the tapered sleeve shown in FIG. 8;

FIG. 11 shows a diagrammatic illustrative side view of another adjustment unit for use in an antenna in accordance with an embodiment of the invention;

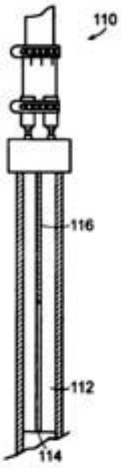


FIG. 11

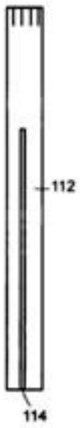


FIG. 12

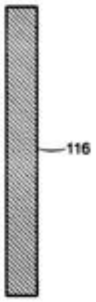


FIG. 13

FIG. 12 shows a diagrammatic illustrative side view of the slotted tube shown in FIG. 11;

FIG. 13 shows a diagrammatic illustrative side view of the sleeve shown in FIG. 11;

FIG. 14 shows a diagrammatic illustrative isometric view of a radiation resistance unit for use in an antenna in accordance with an embodiment of the invention;

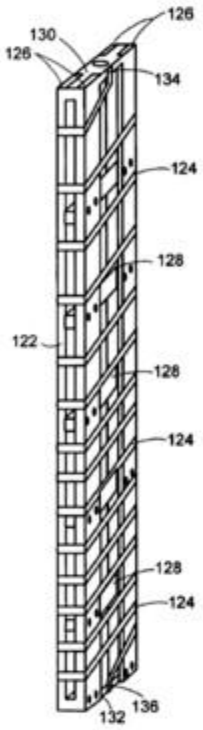


FIG. 14

FIGS. 15A, 15B and 15C shows diagrammatic illustrative isometric, front and side views of a current enhancing unit for an antenna in accordance with an embodiment of the invention;

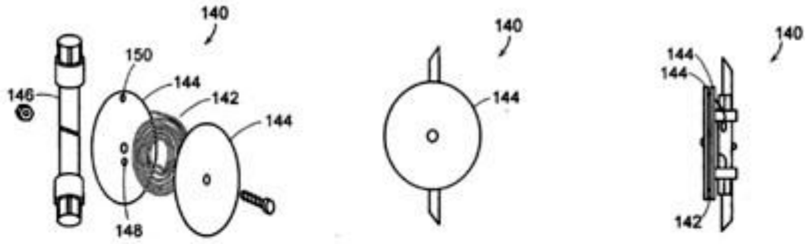


FIG. 15A FIG. 15B FIG. 15C

FIGS. 16 and 17 show diagrammatic illustrative side views of antennas in accordance with further embodiments of the invention employing the radiation resistance unit shown in FIG. 14;

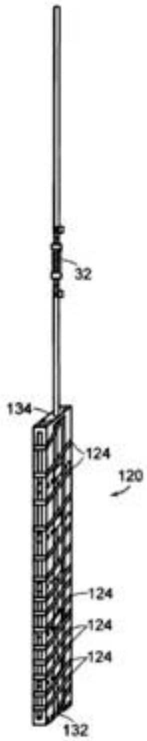


FIG. 16

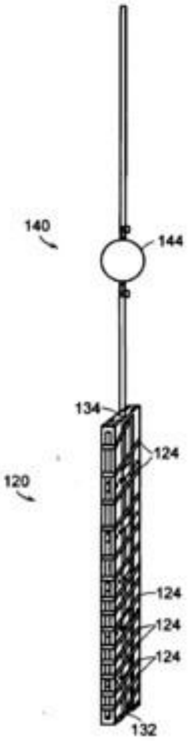


FIG. 17

FIG. 18 shows a diagrammatic illustrative isometric view of a plurality of monopole antennas in accordance with the invention being used together in a multi-frequency system;

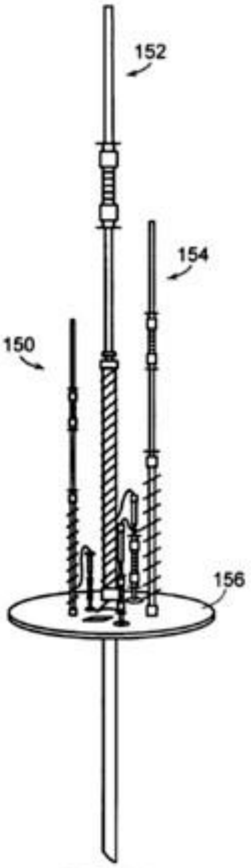


FIG. 18

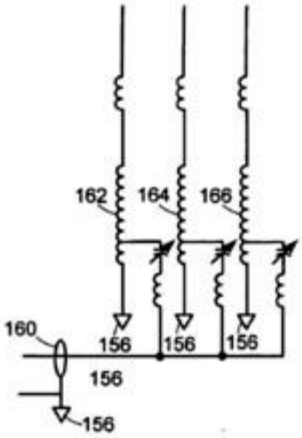


FIG. 19

FIG. 19 shows a diagrammatic illustrative electrical schematic of a portion of the system shown in FIG. 18;

FIG. 20 shows a diagrammatic illustrative side view of an antenna in accordance with an embodiment of the invention that forms a loop antenna system;

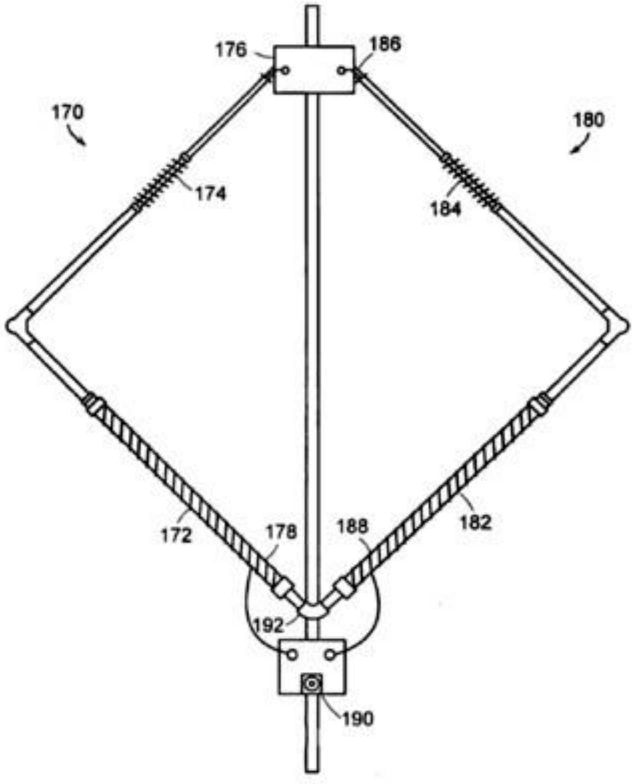


FIG. 20

FIG. 21 shows a diagrammatic illustrative side view of an antenna in accordance with an embodiment of the invention that forms a dipole antenna system;

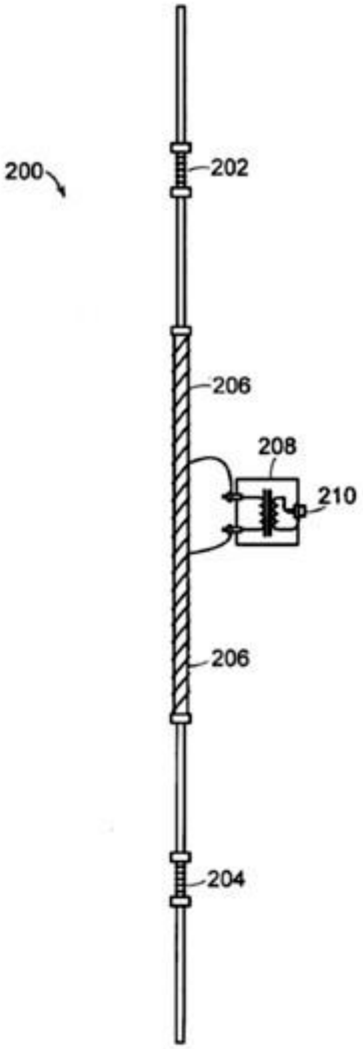


FIG. 21

FIG. 22 shows a diagrammatic illustrative electrical schematic of an antenna in accordance with an embodiment of the invention;

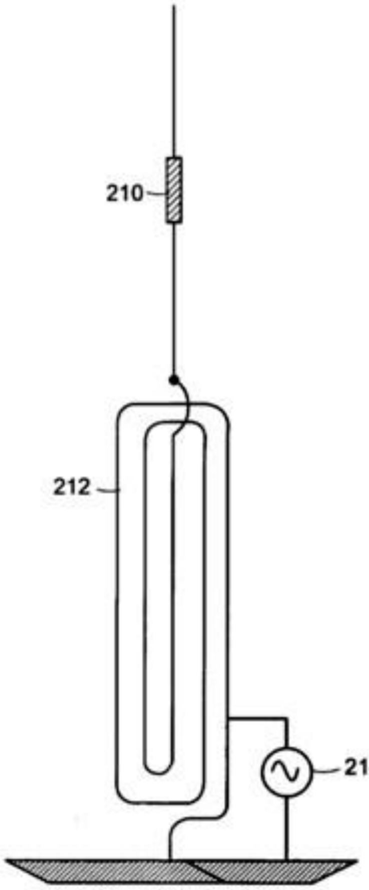


FIG. 22

FIG. 23 shows a diagrammatic illustrative side view of an antenna in accordance with an embodiment of the invention; and

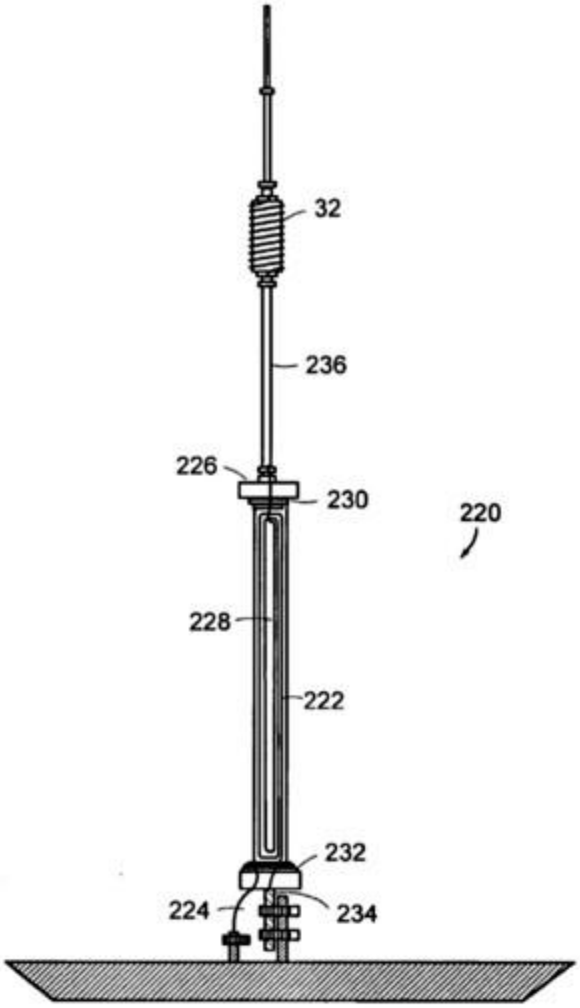


FIG. 23

FIGS. 24, 25 and 26 show diagrammatic illustrative side views of antennas in accordance with further embodiments of the invention;

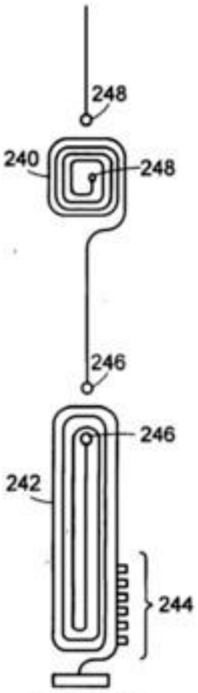


FIG. 24

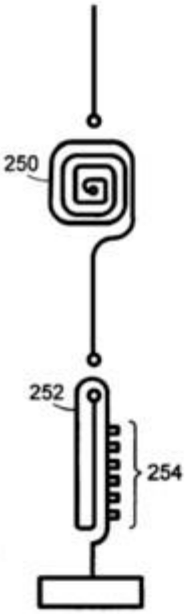


FIG. 25

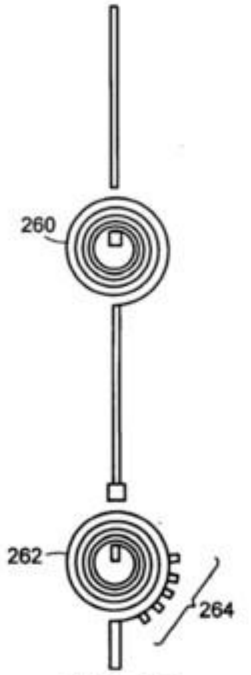


FIG. 26

The drawings are shown for illustrative purposes only.

DETAILED DESCRIPTION OF THE ILLUSTRATED EMBODIMENTS

A distributed loaded monopole antenna in accordance with an embodiment of the invention includes a radiation resistance unit for providing significant radiation resistance, and a current enhancing unit for enhancing the current through the radiation enhancing unit. In certain embodiments, the radiation resistance unit may include a coil in the shape of a helix, and the current enhancing unit may include load coil and/or a top unit formed as a coil or hub and spoke arrangement. The radiation resistance unit is positioned between the current enhancing unit and a base (e.g., ground), and may, for example, be separated from the current enhancing unit by a distance of 2.5316.times.10.sup.-2.lamda. of the operating frequency of the antenna to provide a desired current distribution over the length of the antenna.

As shown in FIG. 1, an electrical schematic diagram of an antenna 10 in accordance with an embodiment of the invention includes a radiation resistance unit 12 and a current enhancing unit 14. The radiation resistance unit 12 (such as, for example, a helix) may be formed in a variety of shapes, including but not limited to round, rectangular, flat and triangular. The radiation resistance unit 12 may be wound with wire, copper braid or copper strap or other conductive material around the form and is such that it's length is very much longer than it's width or diameter.

The current enhancing unit 14 may also be formed of a variety of conductive materials and may be formed in a variety of shapes. The unit 14 is positioned above the unit 12 and is separated a distance above the unit 12 and supported by a mid-section 16 (e.g., aluminum tubing). The current enhancing unit 14 when placed a distance above the radiation resistance unit 12 performs several important functions. These functions include raising the radiation resistance of the helix and the overall antenna.

The above antenna provides continuous electrical continuity from the base of the helix to the top of the antenna. The base of the antenna is grounded as shown at 18, and the signal to be transmitted may be provided at any point along the radiation resistance unit 12 (e.g., near but not at the bottom of the unit 12). The signal may also be optionally passed through a capacitor 22 in certain embodiments to tune out excessive inductive reactance as discussed further below.

FIG. 2 shows an implementation of the above antenna system in which the radiation resistance unit is formed as a helix 30, and the current enhancing unit is formed as a load coil 32. The helix 30 is formed as a conductive coil that is wrapped around a non-conductive cylinder wherein the coil windings are mutually spaced from one another by a distance of approximately the thickness of the coil. The bottom of the helix coil is connected to ground as shown at 34, and the top of the helix coil is connected to a conductive mid-section 36 between the helix 30 and the load coil 32. The load coil is formed as a tightly wrapped spiral, the base of which is connected to the mid-section 36 and the top of which is connected to a top-section 38. The mid-section 36 may separate the helix 30 and load coil 32 by a distance as indicated at A. The signal to be transmitted is coupled to the antenna by a coaxial cable 40 whose signal conductor is coupled to one of the lower helix coil windings near the base as shown at 42, and whose outer ground conductor is coupled to ground as shown.

The choice of the distance A of the load coil above the helix impacts the average current distribution along the length of the antenna. As shown in FIG. 3, the average current distribution over the length of the antenna varies as a function of the mid-section distance for a 7 MHz distributed loaded monopole antenna. The mid-section distance is shown along the horizontal axis in inches, and the percent of average current over the antenna length is shown along the vertical axis. The relationship between the mid-section distance and the percent of average current is shown at 50 for this antenna. The current distribution for this antenna peaks at about 42 inches as shown at 52. The conductive mid-section has a length that provides that a sufficient average current is provided over the length of the antenna and provides for increasing radiation resistance to that of 2 to nearly 3 times greater than a 1/4.lamda. antenna (i.e., from for example, 36.5 Ohms to about 72 100 Ohms or more).

The inductance of the load coil should be larger than the inductance of the helix. For example, the ratio of load coil inductance to helix inductance may be in the range of about 1.1 to about 2.0, and may preferably by about 1.4 to about 1.7. In addition to providing an improvement in radiation efficiency of a helix and the antenna as a whole, placing the load coil above the helix for any given location improves the bandwidth of the antenna as well as improving the radiation current profile. The helix and load coil combination are responsible for decreasing the size of the antenna while improving the efficiency and bandwidth of the overall antenna.

In further embodiments, a top unit 60 may also be provided that includes eight conductive spokes 62 that extend from a conductive hub 64 as shown in FIG. 4. The spokes 62 may be held within small holes by set screws through which they are electrically connected to the conductive top-section 38 of the antenna. As shown in FIG. 5, the top unit 60 may be placed atop an antenna such as the antenna shown in FIG. 2. This may further reduce the inductive loading of the helix and load coil to allow even wider bandwidth and greater efficiency. The top unit is included as part of the current enhancing unit. In further embodiments, the top unit may be used in place of the load coil as the current enhancing unit.

A current profile for a 12 foot antenna employing a helix and load coil (starting at 7.5 feet) was found to show 100 percent current up to an elevation of about 7 feet, while a similar 9.5 foot antenna using an additional top unit was found to show 100 percent current up to an elevation of about 8 feet. The structure provides electrical continuity from the base of the helix to the top of the top section. The top unit may, in further embodiments, include a planar spiral winding that extends radially from, and in a transverse direction with respect to, the antenna as discussed below in connection with FIG. 6.

There is an electrical connection from the bottom of the helix up through the helix and through the midsection and continues through the load coil to the top section. The helix at the bottom has provisions for tapping the turns of the helix. This allows connection from a source of radio frequency energy and proper matching by selecting the appropriate tap to facilitate maximum power transfer from the radio frequency source to the antenna. The placement of the load coil provides linear phase and amplitude responses through the bandwidth of the antenna and even beyond the normally usable bandwidth of the antenna. It has also been found that such an antenna has no harmonic response, and that its response is similar to that of a low Q band pass filter.

The antenna shown in FIG. 2 may be mounted by clamping the base of the helix to a mounting pole that has been driven into the ground. Clamps may be used to affix the antenna sufficiently to the ground mounting post. In this embodiment the antenna is shown grounded to earth through a grounding rod, ground wire and connected to the base of the antenna and electrically connected using a ground clamp. Radial wires extending above ground or buried in the ground are electrically connected to the antenna using the ground wire and the ground rod and extend out from the antenna base for a uniform distance but not limited to any specific length. This grounding system comprised of a ground rod and radial wires may also take on many forms such as a large piece of copper or other conductor screen of any given geometric shape. This grounding system may also take on the form of a metal plane such as a ship, automobile, or a metal roof of a building among others. The antenna may also be elevated above ground on a conductive post with radial wires extended as guy wires to support and keep antenna in the upward erect position. These guy wires serve as an elevated ground poise or radial system.

The feed for the antenna from a radio frequency source is tapped a few turns from the base of the helix driven by a radio frequency source and connected by a coax cable. The shield of the coax cable is connected to the base of the helix which is grounded to the ground rod. The radio frequency source is used to excite the antenna and cause a radio frequency current to flow which causes the distributed loaded monopole antenna to radiate.

As indicated above, the design of the helix and interaction of the load coil are such that the antenna exhibits a large and uniform current distribution for various lengths along the antenna. The length and uniformity of this current profile is dependent upon the ratios of inductance between the load coil and the helix as well as location of placement of the load coil above the helix. In addition, the placement of the load coil allows larger than normal bandwidth measured as deviation from resonant frequency either side of resonance in which sufficient match between the source of radio frequency energy and the antenna can be maintained to allow the antenna to radiate with reasonable efficiency. In addition, the interaction of the helix and load coil allows reduction of the physical height of the overall antenna without reducing electrical height and provides for an increase in radiation resistance. This increase in radiation resistance reduces the effect of losses associated with short antennas. These losses include resistance in the wires of the helix and load coil and Ohmic resistance of the antenna conductors and that of the ground system. All or any of these has a pronounced effect on antenna radiating efficiency, reduction of antenna bandwidth and overall performance in shortened antennas. The design of the distributed loaded monopole antenna with a helix and load coil above the helix overcomes those losses and provides a high level of radiating efficiency with excellent bandwidth in a small compact easily implemented antenna.

The physical structure of an antenna and the interaction of the components as described above allow for maximum use of distributed capacity along the antenna to ground to reduce inductive loading required to resonate the antenna to a given desired radio frequency. This increases efficiency, raises radiation resistance and improves bandwidth. This also allows the antenna to have amplitude and phase response through resonance that resembles a universal resonance response curve with linear deviations in amplitude and phase for bandwidths far exceeding the normal half power bandwidth of the antenna.

The antenna of FIG. 5 may be formed as follows. A helix is formed by wrapping a conductive material around a tubular non-conductive form, such as fiberglass, PVC or other suitable tubular insulator. In further embodiments, any form may be used such as those that are also square, rectangle or triangular in cross section. Attached to the top of the helix is a top fitting that is formed of a conductive material such as aluminum or other suitable conductive material. In this embodiment these are machined but can also be cast from aluminum or other suitable conductive material. Slots are cut in the top fitting to allow clamping on to a aluminum tubing of such diameter that they form a tight mechanical fit when such tubing is inserted. This fitting is inserted into the helix tube and in this embodiment is epoxy bonded together with the helix and fitting. It may also be fastened with machine screws provided the helix form is drilled and the fitting has been drilled and threaded. Likewise a bottom helix fitting is machined or cast of aluminum or other conductive material is attached to bottom of helix. This fitting is solid aluminum and has mounting rod. A helix insertion rod has been epoxy bonded to the helix form. The main section forms a conductive mounting point for this lug and helix winding. A helix winding is attached at the base fitting with a solder lug or other conductive connecting material and fastened electrically and mechanically to the helix end fitting with a machine screw. The helix is wound with copper strap but not limited to this material but can be wire or copper braid wound in a circular manner over the entire length of the helix form and attached to the helix top fitting using, for example, a solder lug. Other conductive connecting devices may be used to allow electrical and mechanical assembly with a machine screw into the drilled and threaded hole. The helix at the bottom has machine nuts or similar connecting devices soldered to the winding for attachment of the center conductor of a coax cable.

Inserted into the top of the helix fitting is a tubing that is held rigidly in the helix top fitting using a clamp. The load coil includes a section of fiberglass tubing that is attached with end fittings that are epoxy bonded to form a strong mechanical connection with both the mid-section and the top-section. The load coil end fittings are machined or cast aluminum. Each of these fittings is slotted and formed, or machined to accept mid-section tubing or top section tubing, which are electrically connected to the load coil itself. The load coil form is wound with heavy copper wire but may be any other heavy conductive material that is closely wound as shown to form a solenoid. Each end is connected to the load coil end fitting with a lug on each end, and attached electrically and mechanically with machine screws that are screwed into holes that have been drilled and threaded into load coil end fittings. Two pieces of tubing form the top section. The lower tube section at the top has been slotted to allow the upper tubing section to be inserted in a telescoping manner into tubing section to permit adjustment of the overall top section length to tune the antenna. Once adjusted, the tubing sections are secured with a clamp to form a rigid mechanical and electrical connection. There is now an electrical connection from the bottom of the helix winding from the helix bottom fitting to the top of the top section.

The completed distributed loaded monopole antenna consisting of the helix 30, the mid-section 36, the load coil 32 and the top section 38 is shown in FIG. 5 mounted on a ground mounting pipe of conductive material using clamps. The coax cable with a center conductor is shown connected to one of the tap points at bottom of helix. The coax shield is electrically connected to the helix base fitting with an electrical clamp. The ground wire 34 is connected to the electrical clamp (and therefore to the ground base of helix) and to a ground rod 44 in the ground. Attached to the ground rod 44 and ground wire are radials 46 that are either buried or lying on the ground. The radials 46 may be of sufficient length and number to provide an adequate counterpoise for operation of the distributed loaded monopole antenna.

The hub 64 of the hub and spoke top unit 60 shown in FIG. 4 may be fabricated from an aluminum disk of sufficient size to accommodate the eight radial aluminum conductors or spokes 62. To use the top unit 60, the normal antenna design inductance for the helix and load coil must be decreased by 1/2 in order to resonate the antenna to the same frequency. The overall antenna height decreases by about 25%. The bandwidth of the antenna increases by a factor of 2.5 times or more over that of a normal design. In addition the antenna increases in efficiency by more than 10% as compared to a normal distributed loaded monopole design.

The top unit hub 64 is drilled with eight holes spaced every 45 degrees around the circumference of sufficient diameter and depth to accept the conductive radial spokes 62. Eight holes are also drilled in the top of the hub along the outer rim and are aligned over the eight holes previously drilled and are threaded to accept set screws that secure the radial conductive spokes 62. All the spokes 62 are of the same length and of sufficient diameter and strength to be self-supporting extending horizontally out from the hub as shown in FIG. 5. The complete top unit with hub and spokes is slipped over the top section of the distributed loaded monopole antenna and horizontally extends in all directions as shown in FIG. 5. The antenna is tuned by decreasing or extending the height of the top unit above the load coil of the antenna. The top unit is provided to maximize and make uniform the current profile of the antenna from the base to as high along the antenna length as possible while providing improved bandwidth and efficiency.

In other embodiments, the top unit 70 may include a non-conductive hub 72 with eight non-conductive rods 74 extending from the center-insulated hub 72 as shown in FIG. 6. These rods may be formed of an insulating material that may be used for radio frequencies. The top section extends through the hub 72 and is then connected to a large conductor or wire 76 at a first end 78 of the wire. The other end 80 of the wire is not electrically connected to any conductive material. This wire 76 is wound in a spiral form from the center in an increasing diameter. This forms a large spiral conductor at the very top of the antenna as well as provides capacitive loading. The function of this configuration is to maximize and make uniform the current profile from the base of the antenna extending all the way to the top of the antenna.

When using the top unit 70 with a load coil and helix of the antenna shown in FIG. 2, the inductance for the helix and the load coil must be reduced by about 1/2(50%). This will allow the antenna to resonate at the same frequency.

For the combined capacitive top unit and load coil of FIG. 5, the load coil and helix inductance is also reduced by about 50%. The overall antenna height decreases by about 25% for the capacitive top unit antenna and for the combined load inductor and top unit combination the antenna height remains the same or in some cases may be slightly larger.

In further embodiments, the bandwidth of the antenna may be enhanced by including an additional coiled wire 82 in a top unit as also shown in FIG. 6. The additional wire 82 includes first and second ends 84 and 86 that are each not electrically connected to any conductive material. It has been found that interlacing a false winding into a current enhancing unit (such as the top unit winding shown in FIG. 6) or a radiation resistance unit (such as a helix as shown in FIG. 7) enhances the bandwidth of the top unit as well as improves the current profile along the antenna. The interlaced false winding has little effect on the resonant frequency of the antenna system.

Similarly, a false winding may be provided in a helix of an antenna in accordance with an embodiment of the invention as shown in FIG. 7 to enhance the bandwidth of the helix. In this embodiment, a radiation resistance unit 90 includes a helix winding 92 that is wound around a non-conductive tube and electrically connected at each end to electrical couplings. An additional winding 94 is interlaced within the helix winding but is not connected electrically to any point within the helix or at the ends of the winding 94. The winding 94 is merely suspended within the helix winding 92 as shown in FIG. 7. This false winding 94 has been found to enhance the bandwidth of an antenna by as much as 100% (i.e., doubling it). The effect of this false winding is to reduce the capacitance between helix and load coil windings, which has been found to be a bandwidth limiting mechanism in helix coils and load coils.

In further embodiments, the resonance of an antenna of the invention that includes a helix may be changed by adding to or removing from the helix, a turn of winding turns of the helix to change coil inductance. This may be accomplished by employing a coil adjustment unit such as units 100 or 110 as shown in FIGS. 8 and 11 respectively. The coil adjustment unit 100 shown in

FIG. 8 includes an electrically conductive slotted tubing 102 (shown in FIG. 9) that is received within the tubing of the helix, i.e., the tubing around which the helix coil (not shown) is wrapped. An electrically conductive tapered sleeve 104 is then inserted within the tubing 102. The slotted tubing 102 may be made from aluminum or any other non-ferrous conductive material. The slot 106 in the tubing 102 is cut lengthwise as shown and may be any convenient width but not greater than 1/6 of the tubing circumference. The top of this tubing should have slots cut to allow a clamp to securely fasten telescoping tubing to be inserted into tubing (102). The total length of this tubing should be such that the portion slotted will fit into the helix tubing and locked into the helix top fitting clamp assembly using a clamp as discussed above.

A portion of the tubing 102 should also protrude from the helix for the additional non-ferrous sleeve 104 to easily slide inside and be secured using a clamp. This sleeve 104 is cut lengthwise as shown to create a long angled section 108. This sleeve 104 when fitted into the slotted tubing 102 provides variations in opening or closing the slot responsive to turning the sleeve 104 with respect to the tubing 102. This permits eddy currents to circulate within this tubing combination where the slot has been closed by the twisting action of tubing. The effect of the slotted tubing when the slot is open is minimal on the helix inductance. When the slot is filled or closed by the rotation of the sleeve 104, eddy currents will be allowed to flow and electrically short out turns of the helix therefore allowing variations of the helix inductance. This same technique may be used for solenoid coils of any length thereby allowing adjustment of the inductance. The number of windings and/or the length of a load coil may also be adjusted using such an adjustment unit.

Similarly, the coil adjustment unit 110 shown in FIG. 11 includes an electrically conductive slotted tubing 112 having a slot 114, and a conductive sleeve 116. In this case the sleeve 116 does not include a tapered edge, and the unit 110 is adjusted by varying the distance to which the sleeve 116 is inserted within the slotted tubing 112. In both cases, once the adjustment has been made to satisfaction the adjusting tubing is clamped securely.

In addition to these embodiments, the distributed loaded monopole antenna may take on other forms. These include reducing the height of the antenna and inductance of the helix and load coil, and affixing at the top of the top section a horizontal series of electrical conductors extending out from the center in the form of spokes for a given distance. These conductors may be any arbitrary number and are arranged as spokes from a hub as discussed above. In accordance with further embodiments, a plain sheet of metal or conductive screen may also be used. Other such embodiments may also be employed where they provide for a large capacitance from the top of the antenna to ground. This capacitance provides for further uniform distribution of current for an even greater distance along the antenna height or length. This further allows for wider bandwidth operation and higher efficiency.

Further embodiments provide that a helix may be constructed as a lattice network of wider width than thickness as discussed below with reference to FIGS. 14 17. This embodiment may take on the form of a latticework constructed of insulating material that is adequately braced along its height or length. The ends of the latticework consist of fabricated aluminum pieces so shaped to support the lattice structure at each end. Winding suitable conductors as described above around the structure from the base to the top forms a helix. The winding is such that the number of turns per unit length is higher at the bottom than at the top. The top of this helix winding is electrically terminated to the conductive lattice termination. These aluminum pieces or suitable conductors provide for affixing additional conductors in the form of tubing, rod or pipe. In this manner, the antenna may be extended in length or height and provide for electrical connection of the helix winding. This extends the electrical connection from ground up through the helix to the top of the antenna through the load coil. The aluminum or any conductive material at the top of the helix structure allows for terminating the helix winding and provides electrical connection to the above mentioned upper structures of the antenna. These upper structures include a mid-section as discussed above. A load coil of any of a variety of geometric shapes may also be employed as further discussed below. To allow connection and proper matching between a radio frequency source and the antenna this above-described helix provision is allowed for tapping the helix conductor anywhere along its length from the bottom of the antenna. The rectangular helix geometry and various load coil geometry allow further reduction of required loading in the form of inductance and enhance further the distributed loading affect of capacity along the length of the antenna to ground. This allows even further improved bandwidth and radiation efficiency. This embodiment may also be used with variations in load coil inductance and helix length and helix inductance, together with a series capacitor match between helix tap and the source of radio frequency energy. These variations allow equivalent performance to a conventional antenna as much as 9 times larger in size.

Current profiles have been developed for various such embodiments of 1/2 wave and 5/8 wave distributed loaded monopole antennas. The manipulation of helix length and inductance as well as the ratio of load coil to helix inductance may achieve a wide variety of suitable antennas.

In addition to the above embodiments, providing a remotely controlled top section length may yield a distributed loaded monopole antenna that is continuously tunable over a large frequency range. This may be achieved utilizing a motor driven worm gear or any other method of varying remotely the adjustment of the top section length. Similarly the antenna may be tuned by varying the helix inductance. This may be accomplished by varying the electrical length of the helix but without changing the mid-section length between the helix top and load coil.

In particular, an antenna in accordance with further embodiments may include a radiation resistance unit 120 having a non-electrically conductive structure 122 around which is wrapped a conductive material 124 in the form of a helix as shown in FIG. 14. The structure 122 may be provided by four elongated edge elements 126 that are each connected to internal non-conductive bridges 128. The end portions 130, 132 are conductive and are electrically connected to each of the ends 134, 136 respectively of the conductive material 124. Each of the bridge portions 128 includes a central hole through which a non-conductive tube may pass, and the conductive end portions 130, 132 also include such an opening as well as a clamp for attaching the unit 120 to the conductive mid-section of an antenna at the upper end of the unit 120 and to ground at the lower end of the unit 120. The mid-section may further include a reinforcing fiberglass rod.

The conductive material 124 may be any suitable conductor such as copper strips (that are thin in depth and wide in width) or copper braid, wire or similar material. The bottom of the winding is fastened and electrically connected to the aluminum or similar conductive bottom plate. The end of the helix winding material is fastened using suitable wire connecting lug or conductive strip and soldered to provide a low loss electrical connection. The lug or connecting strip is fastened with a machine screw to a hole drilled into bottom plate which has been threaded to accept a machine screw. This provides a secured electrical connection. A similar fastener may be used to connect the top end of the helix winding to the helix top plate.

The antenna shown in FIG. 16 may provide near 1/2 wave vertical antenna performance. The mid-section may be lengthened or shortened as discussed above to tune the resonance of the antenna. Similarly, the antenna shown in FIG. 17 may provide improved performance with additional bandwidth, The current enhancing unit 140 of FIG. 17 may be formed using a conductive planosprial coil 142 that is sandwiched between two non-conductive discs 144 and mounted to a non-conductive tube section 146 as shown in FIGS. 15A, 15B and 15C. The ends of the coil 142 are passed through two openings 148 and 150 in the inner disc and connected to the conductive mid-section and top-section of the antenna. Adjustment of the length of the top-section (as discussed above) may further be used to tune the antenna to resonance. In either antenna, various ratios of load coil to helix inductance may permit various performance levels of the antenna to be optimized.

When a flat antenna is designed for resonance much lower than normal, it will give 5/8 wave performance. The embodiment shown in FIG. 14 uses the flat helix but this helix is a little longer by about 10%. This allows a slightly higher inductance in the helix.

The embodiment shown may be ground mounted as discussed above using a base mounting rod. Attached to this base mounting rod may be an enclosure housing a capacitor (e.g., 22 as shown in FIG. 1) and a standard coax receptacle. The center conductor of this coax receptacle is connected to one side of the series capacitor using a short wire. The coax shield is connected electrically through the enclosure box mounting plate and clamps to the base of the antenna, mounting post and the radial/ground system. The other side of the capacitor is connected to a feed through also using a short wire from the capacitor, and this short wire exits outside the box for connection of an additional wire that is used to tap the helix base a few turns from the bottom. Also connected to the base mounting rod is a grounding wire that is connected to a ground rod. The base mounting rod is a conductive material and is driven into the ground. This rod is securely connected to the helix base plate which is also conductive. This allows grounding the base of the helix and the beginning of helix winding to the ground using the ground wire and the ground rod.

Radials are run on top of or in the ground by burying them under the surface. The radials are extended out from the base in a circular manner like the spokes extending from the hub of a wheel (similar to the hub and spoke structure of the top unit shown in FIG. 4). The radials are electrically connected to the base of the antenna through the ground rod and wire. This allows including the radials as part of the antenna ground system and serves as an electrical counterpoise.

The antenna shown in FIG. 17 may be made for 1/4 wave performance using suitable values of helix and load coil, together with proper dimensions of the top and bottom sections. This provides extended bandwidth performance and improved efficiency. The antenna may utilize either load coil (32 or 140), and the helix length is reduced slightly to permit the antenna to resonate just below the lower frequency of operation. In this antenna, there is no need for the capacitor coupling (22 of FIG. 1) to tune out the added inductance.

In further embodiments, antennas of the invention may be combined to form other antenna systems such as dipoles where two antennas are placed back to back and their helixes electrically connected at a mutual base. The method of connecting the radio frequency source is to tap the helix from the middle and extend to each side till a suitable match between source and load can be achieved. A balanced matching transformer or BALUN can be used to drive the feed point. In addition, the antenna may be arranged in vertical positions along the ground and formed into arrays of antenna elements providing directional transmission. Distributed loaded monopole elements combined into dipoles may be further combined to form horizontally or vertically polarized arrays such as yagis or phase driven arrays of any number of elements. Such elements may also be combined into loops providing directional characteristic with improved sensitivity compared to other loop forms.

For example, as shown in FIG. 18 multiple antennas 150, 152, 154 of different resonant frequencies resulting in different physical sizes may be used together to provide a multi-frequency system on a common, electrically conductive, mounting stage 156. An equivalent electrical schematic diagram of three such antennas sharing the common mounting stage is shown in FIG. 19. This mounting stage (which may be elevated from ground) may be any conductive surface such as a vehicle or a ship or a large metal sheet such as a roof of a building. When mounting in an elevated manner using a long pole such that the antennas and the mounting surface are some height above ground, the ground radials may be used to as a counterpoise as well to stabilize the structure. It is not required that any counterpoise or radial system be resonant

As shown in FIG. 19, a single coaxial feed line 160 is used from the source of radio frequency excitation. All three antennas are connected to the coaxial feed in a parallel manner. The proper selection of antenna is provided by the series tuned circuits connecting to the proper tap point on each helix 162, 164, 166. At the frequency of operation and resonance of the particular antennas selected the series resonant coupling circuits will be of sufficiently low impedance to couple the coaxial feed to the proper antenna. The series coupling elements not in use will be sufficiently de-coupled by virtue of their relatively high impedance. This configuration by virtue of this operation will provide efficient operation for each antenna to be automatically selected.

Antennas used in accordance with further embodiments of the invention may provide a pair of distributed loaded monopole antennas as a half wave loop or two pairs may be used form a full wave loop. FIG. 20 shows two such antennas used as a half wave loop. A first antenna 170 includes a helix 172 and a load coil 174, and a second antenna 180 includes a helix 182 and a load coil 184. A variable capacitor may be coupled between the upper ends 176 and 186 of the antennas 170 and 180. The taps near the lower ends 178 and 188 of the antennas 170 and 180 may be coupled to a first balanced transformer winding while a second transformer winding is coupled to a coaxial connector port 190. In other embodiments, the end 192 of the one antenna 170 may be coupled to the first conductor of the coaxial connector 190, while the second conductor of the coaxial connector is coupled to a tap near the lower end 188 of the antenna 180.

During operation, the loop may be resonant at a higher operating frequency, and the loop may be tuned to resonance using the variable capacitor between the ends 176 and 186 of the antennas 170 and 180. If the loop is used for transmitting, the variable capacitor must be of sufficiently high voltage rating so as not to be broken down by the very large high radio frequency voltages generated across this capacitor. To implement the configuration or embodiment as shown, the midsections of each monopole element are bent into a 90-degree right angle. The bottoms of the helixes are joined using a conductive coupling. The entire loop is mounted on an insulated pole and may be rotated. The loop is feed with an unbalanced coax feed line and the transformer may be used to balance the loop. A virtual ground exists where the helix bases are joined. Because of this virtual ground the loop may be fed unbalanced while the coax shield is grounded at the helix joining point. To match the loop to the source in either case, it is only necessary to select the proper tap of the helix.

Antennas in accordance with various embodiments of the invention may also be coupled as a distributed loaded dipole as shown at 200 in FIG. 21. The dipole antenna 200 includes two load coils 202 and 204 that are each mutually spaced from an intermediate (double length) helix 206, which is formed by joining two helixes together at their ends. Taps taken from either side near the center of the helix are coupled to either side of a first winding of a balanced transformer 208. The second winding of the transformer is coupled to each of the two conductors of a coaxial connector 210 as shown. The transformer may be mounted in an enclosure. Selection of the proper tap points from the middle to each side of the helix winding should provide a sufficient impedance match to the radio frequency source. The transformer enclosure may be mounted a short distance from the dipole antenna and connected with short wires as indicated.

Antennas in accordance with further embodiments of the invention may include a current enhancing unit 210 and a radiation resistance unit 212 wherein the radiation resistance unit 212 is not formed as a helix or even a spiral that rotates about the longitudinal axis of the antenna, but rather as a planospiral that rotates about an axis that is orthogonal to the longitudinal axis of the antenna as shown in FIG. 22. The coil of the unit 212, therefore, is formed as a coil that extends back and forth along a length of the unit 212. The antenna may be driven by a transmission signal (as indicated at 214) by tapping onto a portion of the coil of the unit 212 near but not at the ground end of the coil in unit 212.

For example, as shown in FIG. 23, the current enhancing unit may comprise a load coil 32 as discussed above with reference to FIG. 2. The radiation resistance unit 220, however, includes a coil 222 that extends from one end 224 (at ground) to a second end 226 by wrapping up and down the length of the unit 220 as shown in FIG. 23. The antenna includes four main parts similar to the antenna shown in FIG. 2. The current enhancing unit shown in FIG. 23 includes a central support element 228, the coil of wire 222, and coil wire stringers 230 and 232 at the top and bottom of the center support element.

Inserted into the center support element (which consists of a 1-inch square fiberglass pole) is an aluminum mounting rod 234 and a mid-section attachment rod 236. The coil wires 222 are strung vertically along the support element 228 to form an elongated spiral loop. This loop is fastened to the mid-section 236 using solder lugs and bolted to the mid-section attachment rod. The mid-section is attached by slipping this mid section tubing over the attachment rod and clamping them together using clamps. The lower part of the loop is attached to the aluminum mounting post 234 using wire lugs that arc screwed into the mounting post through the fiberglass main support holding the wire coil 222. The ground wire is clamped to the ground rod using a ground damp. In further embodiments, a false winding may also be added to the unit 220 as discussed above with reference to FIGS. 6 and 7.

The performance of this antenna as shown in FIG. 2 at 7 MHz has been measured and it compared well with a 1/4 wave antenna. This full size antenna is 33 feet in height and this antenna with a plano spiral radiation resistance unit is 1/3 this size or approximately 11 feet in height. Both antennas were mounted on the same ground system and fed with the same power as measured at the base of each antenna. A driving power of 1 watt was used. Measured levels of radiating signal strength were so close to a 1/4 wave measured signal strength that the two antennas appear to be equal in radiating performance.

The current profile was measured using an indirect current sensor, and it compared well with a current profile for the antenna of FIG. 2 employing a three dimensional helix. The antenna of FIG. 23 appeared to provide uniform current distribution.

One feature of the design of an antenna such as that shown in FIG. 2, is that normally an antenna of such a size as discussed above requires 25 .mu.H of combined helix and load coil inductance to resonate at 7 MHz. This also requires considerable lengths of wire (about 42 feet for the helix and 20 feet or so for the load coil). The planospiral design uses 10% less wire and is resonant at 7 MHz using 10% less inductance. The planospiral helix appears to make better use of distributed capacity loading to ground than does the standard DLM. This has also been noticed in the three dimensional flat board-like frame helix used with planospiral load coils. Due to better utilization of distributed loading techniques by the piano spiral antenna, it may achieve better efficiency and wider bandwidth especially when utilizing the false helix winding. The system of FIG. 23 also appears to provide excellent linearity of the amplitude and phase and the relative linear progression of reactive to non reactive changeover in the antenna through the bandwidth.

Certain of the above distributed loaded monopole antennas utilizes a helix with a load coil to improve the radiated efficiency of the helix and antenna overall. The addition of the load coil raises the radiation resistance of the antenna, increases and makes uniform the current distribution along the antenna, and increases the useful bandwidth of the antenna. These structures, though practical and useful for many ranges of frequency applications (such as very low, low, medium, high and very high frequency systems), present practical limitations for ultra high frequency and microwave radio frequency applications. For example, a 1000 MHz system might require a helix that is eight thousandths of an inch in diameter and 0.3 inches in length of which upwards of 100 turns of very fine wire must be wound.

Applicant has further discovered that a plano-spiral antenna may be created in accordance with a further embodiment of the invention that provides coils fabricated in two planes. In further embodiments, such an antenna may be scaled to provide operation at ultra high frequencies and microwave radio frequencies by providing a similarly planar load coil 240 and radiation resistance unit coil 242 on a printed circuit board as shown in FIG. 24. The coil 242 may also include a plurality of tap points 244 for easy matching to a standard feed line. The circuit provides a continuous conductive path through the pass through holes shown at 246 and 248 as is well known in the art. In further embodiments, fewer windings on the load coil 250 and radiation resistance coil 252 with taps 254 may be used as shown in FIG. 25, and the load coil 260 and radiation resistance coil 262 with taps 264 may be formed in many difference shapes such as circular spirals as shown in FIG. 26.

Such antennas may be suitable for applications such as radio frequency identification tags (RFID) at high frequencies. It is expected that these may be implemented on a silicon substrate of a very small scale, providing for example a 1/4 wave antenna up to or above 4.2 GHz.

For example, the helix inductance for an antenna at 100 200 MHz may be 0.131 .mu.H or 131 nH, and the load coil inductance may be 0.211 or 211 nH. The helix to load coil ratio for inductance is 1.61. To be a true 1/4 wave distributed loaded monopole antenna the load coil to helix inductance ratio should be 1.4 1.7.

Another such antenna that is 1/2 the physical size was also measured, and the helix inductance for the antenna may be 0.088 .mu.H or 88 nH, and the load coil inductance may be 0.135 or 135 nH. The helix to load coil ratio for inductance is 1.56. This resulted in an antenna with a resonance around about 400 500 mH.

Those skilled in the art will appreciate that numerous modifications and variations may be made to the above disclosed embodiments without departing from the spirit and scope of the invention.

Shenhe WANG

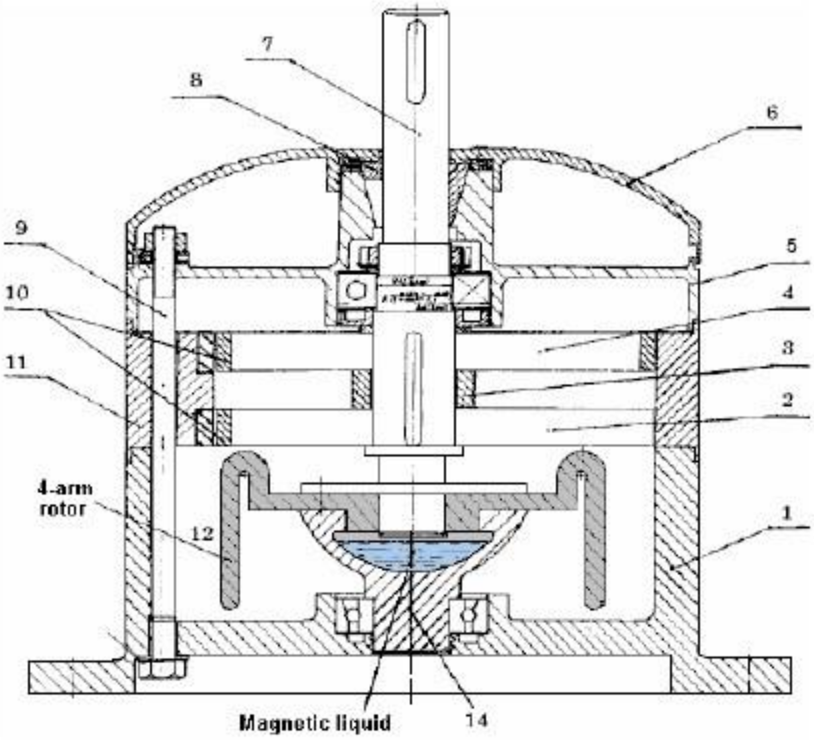
Power Generator

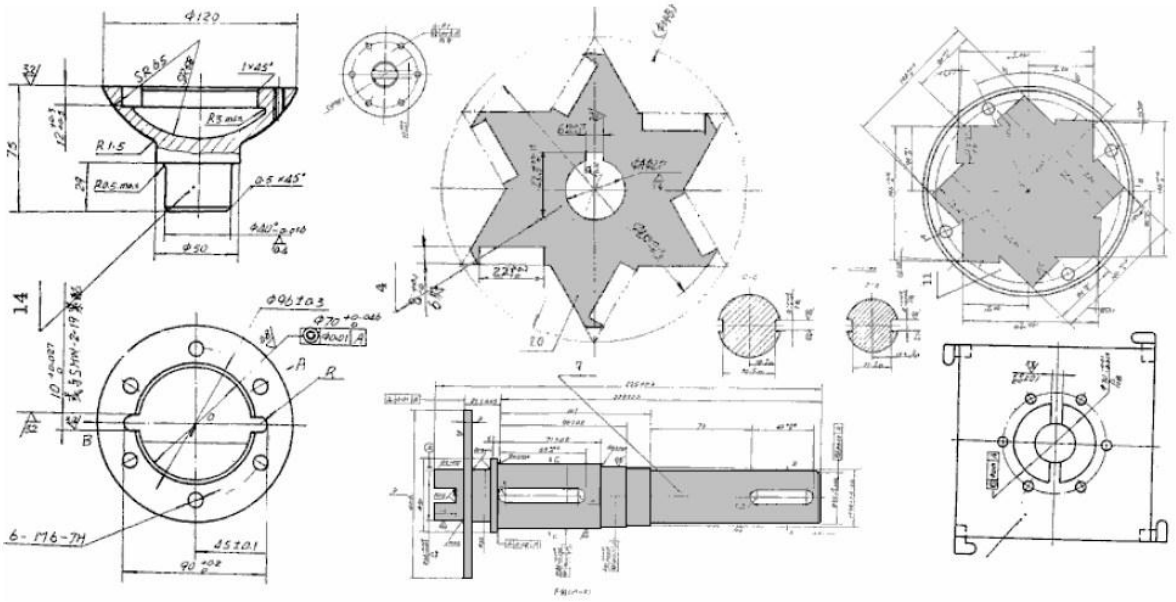
Shenhe WANG

Power Mechanism
CN1218329

[PDF]
1999-06-02
Inventor(s): WANG SHENHE
Classification: - international: H02N11/00; (IPC1-7): H02N11/00

Abstract -- A power machine based on universal gravitation features use of a special structure to collect energy and use of high-intensity magnet whose unused surface has been shielded to limit speed, both of which are combined to generate physical motion. Its advantages are new style, simple structure, saving energy, no pollution, smooth rotation, long service time, low noise and low cost.





---

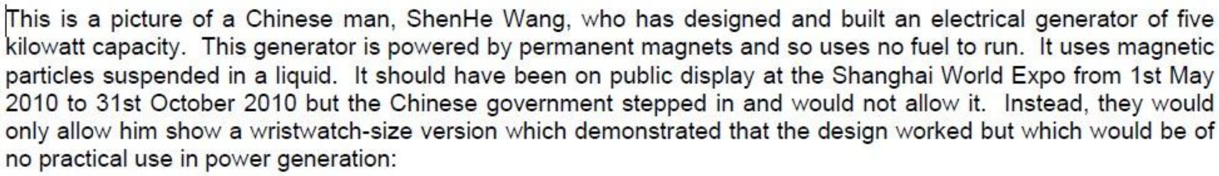
http://www.free-energy-info.com/Wang.pdf

The Shenhe Wang Power Generator

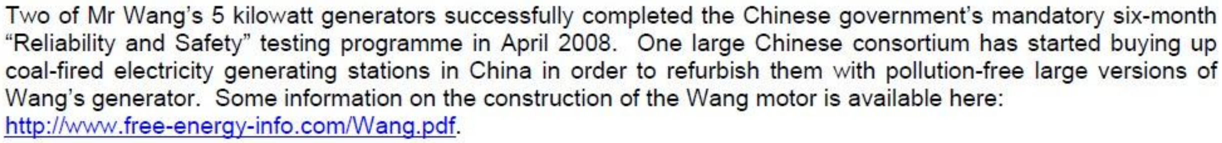
by

Patrick J Kelly

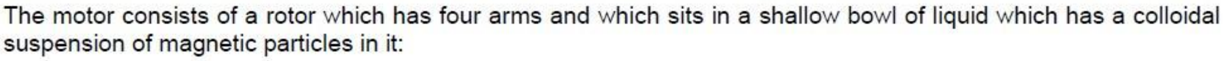
Excerpts:



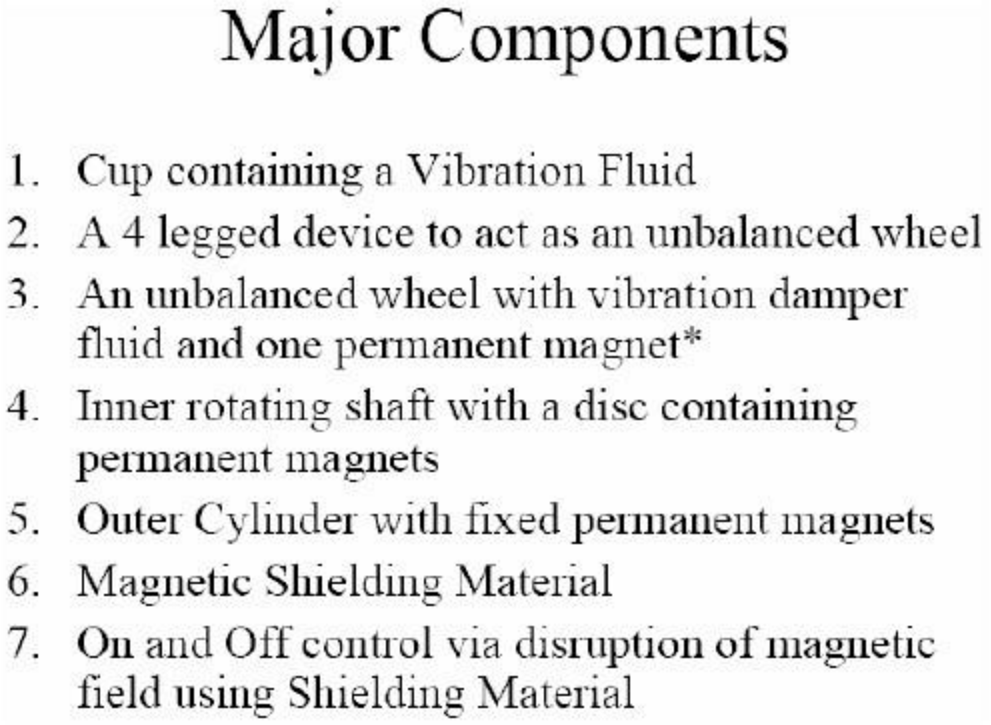
This is a picture of a Chinese man, ShenHe Wang, who has designed and built an electrical generator of five kilowatt capacity. This generator is powered by permanent magnets and so uses no fuel to run. It uses magnetic particles suspended in a liquid. It should have been on public display at the Shanghai World Expo from 1st May 2010 to 31st October 2010 but the Chinese government stepped in and would not allow it. Instead, they would only allow him show a wristwatch-size version which demonstrated that the design worked but which would be of no practical use in power generation:



Two of Mr Wang's 5 kilowatt generators successfully completed the Chinese government's mandatory six-month "Reliability and Safety" testing programme in April 2008. One large Chinese consortium has started buying up coal-fired electricity generating stations in China in order to refurbish them with pollution-free large versions of Wang's generator. Some information on the construction of the Wang motor is available here: http://www.free-energy-info.com/Wang.pdf.

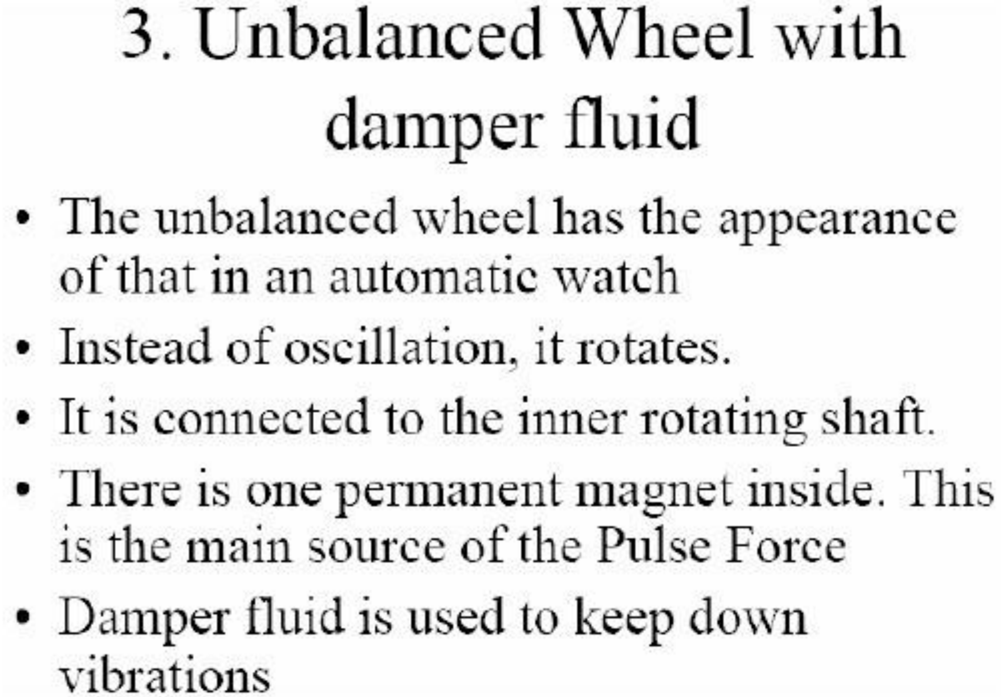


The motor consists of a rotor which has four arms and which sits in a shallow bowl of liquid which has a colloidal suspension of magnetic particles in it:



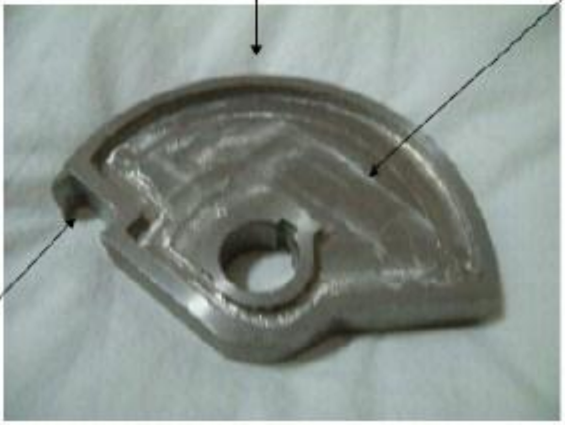
Major Components

1. Cup containing a Vibration Fluid
2. A 4 legged device to act as an unbalanced wheel
3. An unbalanced wheel with vibration damper fluid and one permanent magnet*
4. Inner rotating shaft with a disc containing permanent magnets
5. Outer Cylinder with fixed permanent magnets
6. Magnetic Shielding Material
7. On and Off control via disruption of magnetic field using Shielding Material



3. Unbalanced Wheel with damper fluid

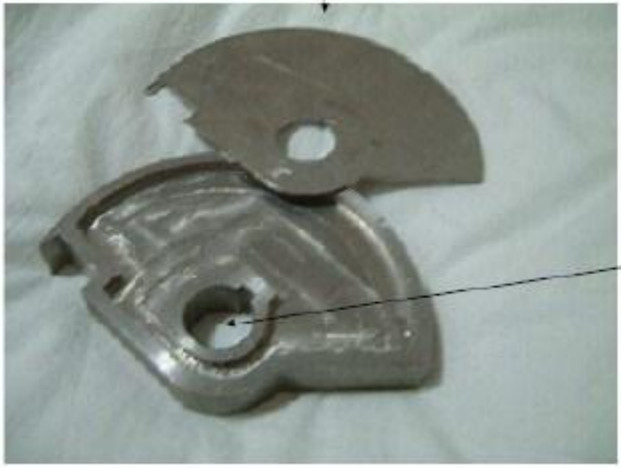
- The unbalanced wheel has the appearance of that in an automatic watch
- Instead of oscillation, it rotates.
- It is connected to the inner rotating shaft.
- There is one permanent magnet inside. This is the main source of the Pulse Force
- Damper fluid is used to keep down vibrations



Off-Balance Rotating Device

Cavity to hold
Stabilizing fluid

One Magnet
Goes Here



Cavity Cover

To fit Inner Shaft

Inner Cylinder with

Magnets inside.

(Design now modified.)

4. Inner rotating shaft with disc containing permanent magnets

- The rotating unbalance wheel causes the Inner shaft to rotate with Pulse.
- This rotation will further cause the disc containing permanent magnets to rotate.
- The permanent magnets all expose N pole to the outside (S pole shielded)
- These magnets will interact with the magnets in the stationary outer Cylinder

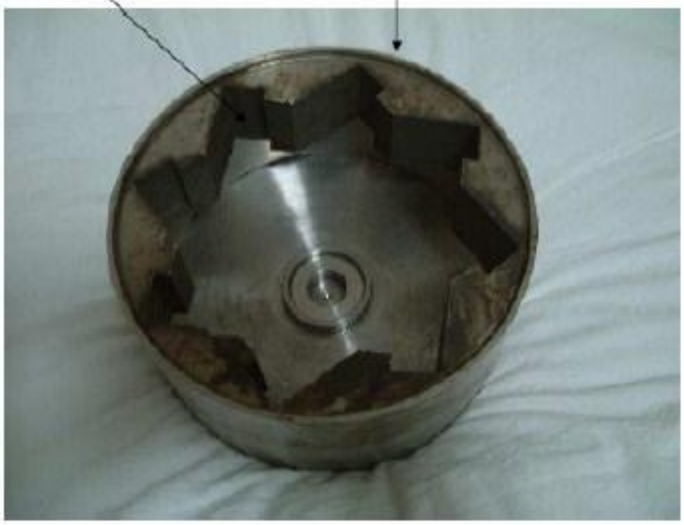
To fit onto the Square 4 legged stool

Inner Rotating Shaft

Completed Inner Shaft Component

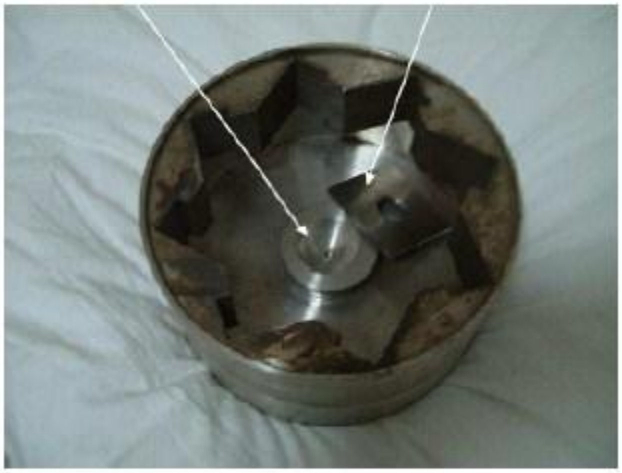
5. Outer Disc with permanent magnets

- The outer disc has exposed N pole magnets
- The repulsion of the N pole magnets between the inner and outer cylinders will cause rotation and thus gain energy
- Magnetic Shielding Material is used so that the rotating is in one direction
  - The Repulsion Force will not retard rotation
  - (Effect reduced if not totally eliminated)



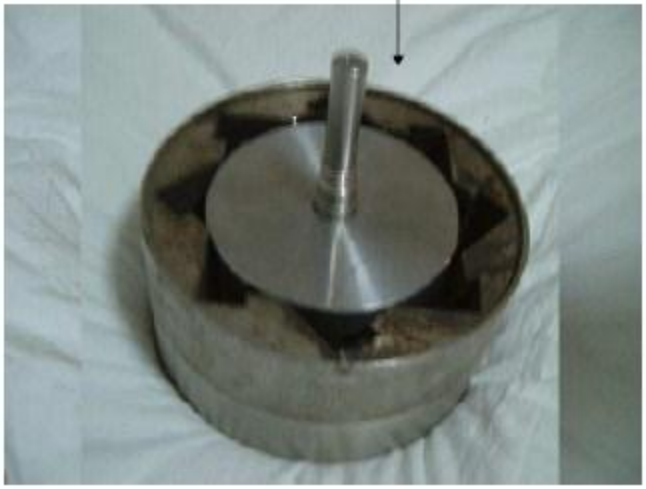
Special Cut To Hold Magnets

Outer Stationary Cylinder



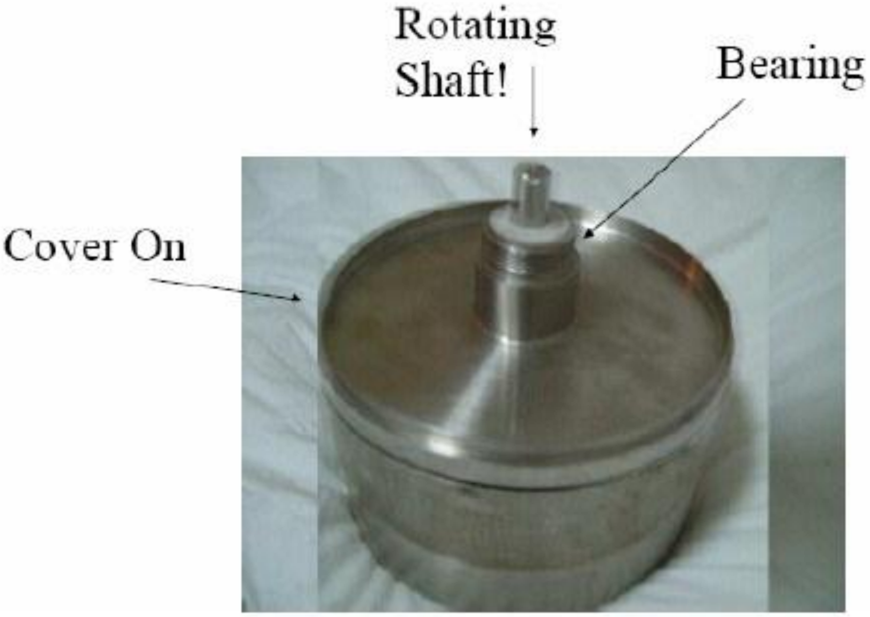
Cup in position

4 legged stool on side

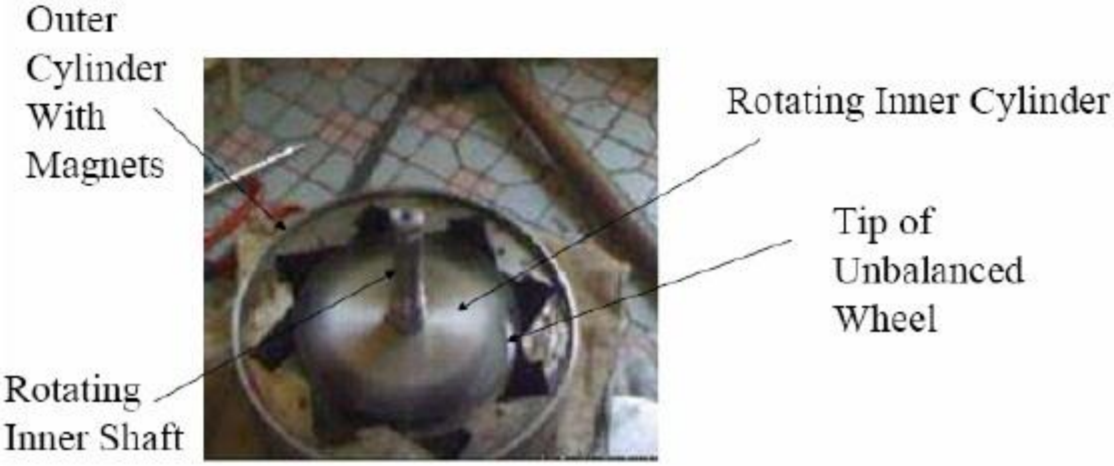


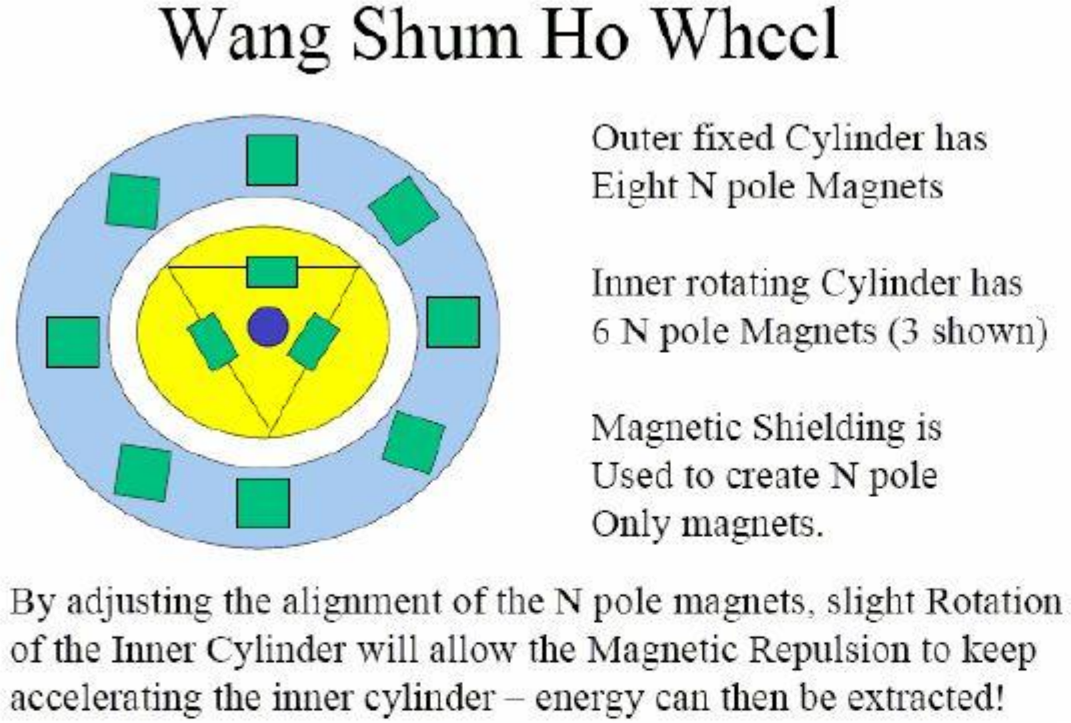
Inner Shaft Assembly
In position

The Assembled Prototype without Magnetic Shielding Material and On/Off Control



Wang Generator in rotation





Wang Shum Ho Wheel

Outer fixed Cylinder has
Eight N pole Magnets

Inner rotating Cylinder has
6 N pole Magnets (3 shown)

Magnetic Shielding is
Used to create N pole
Only magnets.

By adjusting the alignment of the N pole magnets, slight Rotation of the Inner Cylinder will allow the Magnetic Repulsion to keep accelerating the inner cylinder – energy can then be extracted!

Steve WARD

Magnetic Convertor

Steven Ward

Energy Ingenuity
P.O. Box 734
Shepherd
Texas 77371

www.energy-ingenuity.com
steve-ward@energy-ingenuity.com
936-628-6192

Steve Ward <steve-ward@energy-ingenuity.com>
27 April 2010

My Fellow American,

Everything is verifiable! Energy (torque and electricity) from Magnets! Who else needs to see a demonstration?

These reactions cannot be caused using only what is taught to exists. I am using part of a magnetic field, which is not a pole, and manipulating it to generate torque, while current is being generated from the poles and the current is used. I can cause these reactions with magnets only after knowing wardforce exists and can be manipulated. As today, without this part of a magnetic field being used, torque and current is generated from different devices. With wardforce being manipulated, usable torque and current can be generated from a single device.

I have discovered a part of the magnetic field, “Wardforce”, which is not a North or South Pole. Using magnetic fields, I am causing reactions which have been taught for over 200 years as impossible. Some of the over 10,000 (hits 2009) people, who are from the US and other countries, have been emailing me, asking questions and I know they understand how I am manipulating wardforce. Some, from other countries, have indicated that they are teaching their children (future work force) about wardforce. Defining wardforce, gives a better understanding of cause and effect. NOW, is the time for science communities and educational facilities, here in the USA, to be involved with developing a curriculum for our future work force...

With this method regarding US patent 7531930 being used, I can demonstrate that torque and current can be generated from magnetic fields. It is not as simple as it sounds and yes, that is right, energy from Magnets...

[&c...]

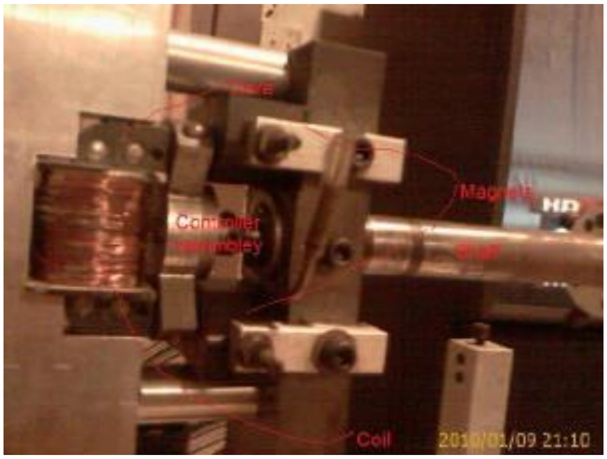
Steven Ward

P.S. On my blog www.energy-ingenuitycom.blogspot.com you can see the videos I have posted. In a demonstration, I show more detail, demonstrate devices which prove the existence of "wardforce" and that it can be manipulated to produce torque. It is not as simple as it sounds, or looks.

---

http://www.energy-ingenuity.com/
April 27, 2010

Energy Producing Magnetic Converter



Backward (pull) motion is demonstrated when shaft decreases in speed.

Forward (push) motion is demonstrated when shaft increases in speed.

Definition: "Wardforce" - (Push-pull) Forward-backward motion part of a magnetic field, a force not poles.

This method for producing usable mechanical and electrical energy uses waves generated from north and south poles, not an AC current. Counter electro-magnetic force is the force I was taught, which resists motion when using current with present day generators. CEMF is the same as a radio wave, only it is not "transmitted". I am "mechanically" transmitting the wave (wardforce), which is converted into usable torque. As more current is used, wardforce increases, producing torque from this part of the magnetic field.   This is to say, when current is used, torque will be generated from the wardforce as described in U.S. patent #7531930. A magnet has 2 poles, wardforce, and what else which cannot be seen? One force, is manipulated for producing current, and the other, wardforce is manipulated for producing torque.

No matter how wardforce can be manipulated, it is a part of the magnetic field! This other part of the magnetic field is what I have been demonstrating and until now, I have not pushed the point of another part existing. The main points at the demonstrations were, that torque and current can be generated from magnetic fields(Magnets). Let's educate others regarding this other part of a magnetic field. I offer physical proof of my claims. Energy from magnets (torque and electricity)!   If anyone was causing these reactions and understand how the reactions are caused, they would also claim another part of the magnetic field exists and can be manipulated.

I cannot cause these reactions, using only what is known to exists. Something else has to exists for these reactions to be caused or the cause of these reactions would be taught and we would not be buying fuel for producing energy.

Verifiable Information

* Demonstrated at Energy Systems Laboratory in Bryan, Texas, Texas Engineering Experiment Station (TEES) July 17, 2009

* Demonstrations were held on 8-12-2009 various times between 5:00p- 8:00pm. Third Annual Houston Inventors/UHSBDC Inventors Tradeshow, 6400 Bissonnet, Houston, Texas. I demonstrated this other part of a magnetic field (I now call Wardforce) exists, and that magnetic fields can be used to produce energy (torque/mechanical and current/electrical).

* High School demonstrations include Shepherd ISD, Coldspring-Oakhurst Consolidated ISD, Onalaska ISD, New Caney ISD.

News Articles

* Cleveland Advocate Volume 93, Number32

* "Shepherd man finds clean energy in magnets"

* Eastex Advocate Volume 32, Number 32

* "Magnetic power source"

* San Jacinto News Times Volume 137 , Number 26

* "Shepherd native produces energy from magnets"

An AC motor was modified so that the coil, with the core (lament core) was in a U-shape and with the coil of wire in the bottom of the U. The coil will need to be mounted across from the permanent magnets. The controller assembly is steel on the ends, allowing flux to flow through from the permanent magnets energizing the coil. Aluminum can be used as a breaking system with magnetism. For the sake of more proof that there is another part to the magnetic field, use Aluminum for the center part of the controller assembly. The shaft can go between the poles, allowing the coil and the permanent magnets to be stationary. I have one facing pole North and the other South. Now, looking at the picture and reading this do you see how it is made? If not send me an email or phone call. At different speeds you will see the different reactions as shown on my video. This will verify that wardforce is not a current or a pole, because it is backward and forward motion.

US7531930
Energy Producing Magnetic Converter

Inventor: WARD STEVEN W SR
EC: H02K53/00
IPC: H02K1/22; H02K21/12; H02K47/00; (+5)
2009-05-12

Abstract -- An energy producing magnetic converter is provided that outputs both electrical and mechanical energy. The converter includes a controller assembly rotatably secured between a plurality of field coil assemblies and a plurality of magnets. During a rotation of the controller assembly between the plurality of field coil assemblies and the plurality of magnets, electric current is generated in wire coils of the field coil assemblies, and counter-magnetic fields are induced around the wire coils. A pole of each counter-magnetic field is formed on the controller assembly, and counterforce present between magnetic fields of the plurality of magnets and the counter-magnetic fields cause and maintain forward rotational motion in the energy producing magnetic converter.; Accordingly, because the forward rotational motion is maintained in the presence of sufficient counterforce, the magnetic converter outputs torque in addition to the electric current, thereby increasing an efficiency of the magnetic converter.

Description

BACKGROUND OF INVENTION

[0001] 1. Technical Field

[0002] The invention relates generally to the subject of converters and power supplies, and, in particular, to devices that generate usable electrical and/or mechanical energy through the use of magnetic fields.

[0003] 2. Background Art

[0004] Magnetic converters, or, devices that produce usable electrical and/or mechanical energy through the use of magnetic fields, or flux, are well known in the art. Some examples of magnetic converters include electric motors, electric generators, transformers, etc. A typical magnetic converter includes at least a pair of permanent magnets and a wire coil free to rotate between the magnets. The magnets are generally connected by a steel former and the wire coil is connected to lead wires using brushes. In a magnetic converter that is used to generate usable mechanical energy, the wire coil may be further connected to a drive shaft.

[0005] In a magnetic converter that is used to generate mechanical energy, e.g., an electric motor, a voltage potential is applied across the lead wires, thereby causing an electric current to flow through the coil. The flow of the electric current induces a magnetic field, or flux, around the coil. The coil's magnetic field repels and attracts the magnetic field generated by the permanent magnets, which, in turn, causes the wire coil to rotate. Accordingly, usable rotational mechanical energy, or torque, may be drawn from the drive shaft.

[0006] In a magnetic converter that is used to generate electrical energy, e.g., an electric generator, the wire coil is rotated in a magnetic field generated by the permanent magnets, thereby inducing a voltage in the wire coil. Accordingly, when the lead wires are connected to a load, e.g., a light bulb, electric current may be drawn from the coil. Consequently, once current begins to flow through the rotating wire coil, a force opposing the motion of the wire coil is also induced, thereby making the wire coil harder to turn. Thus, as is explained by the conservation of energy law, the more work that the converter does, the more work that must be put into its operation. In physical practice, the work put into the operation of the converter is produced by applying a greater mechanical driving force, or increased input torque, to the rotating wire coil.

[0007] Accordingly, it would be desirable to provide a magnetic converter for generating electrical energy in which the input torque applied to the magnetic converter need not be increased to maintain operation of the converter. Further, it would be desirable to provide a magnetic converter for generating electrical energy in which an input torque is not required to maintain operation of the converter, and, hence, usable output torque may be drawn from the converter. Advantageously, in such a scheme, the magnetic converter may be used to generate usable electrical and mechanical energy, thereby increasing an efficiency of the magnetic converter.

SUMMARY OF INVENTION

[0008] According to one aspect, an energy producing magnetic converter includes a housing; a plurality of field coil assemblies disposed on a first surface of the housing; a plurality of magnets disposed on a second surface of the housing opposite of and aligned with the plurality of field coil assemblies; and a controller assembly rotatably secured to the housing and positioned between the plurality of field coil assemblies and the plurality of magnets, wherein, upon application of an electric load to the plurality of field coil assemblies, a rotation of the controller assembly relative to the plurality of field coil assemblies and the plurality of magnets induces at least one counter-magnetic field for generating an electric current.

[0009] According to another aspect, a magnetic converter system includes a plurality of field coil assemblies; a plurality of magnets, each magnet of the plurality of magnets being positioned opposite of and separated from a corresponding field coil assembly of the plurality of field coil assemblies by a spacing interval; a controller assembly having a plurality of controllers, each controller of the plurality of controllers being arranged to pass through the spacing interval between each magnet and the corresponding field coil assembly; and wherein, during a rotation of the controller assembly, a plurality of counter-magnetic fields generated substantially on the plurality of controllers as the plurality of controllers pass through the spacing interval between each magnet and the corresponding field coil assembly generates sufficient counterforce to provide and maintain forward rotational motion to the controller assembly, and wherein the maintaining of the forward rotational motion generates an output torque of the magnetic converter system.

[0010] According to another aspect, a method for generating usable electrical energy and usable mechanical energy of a magnetic converter includes rotating a plurality of controllers secured to a controller plate of the magnetic converter between a field coil assembly and an opposing magnet of the magnetic converter; utilizing a counter-magnetic field generated on each controller of the plurality of controllers to produce sufficient counterforce to maintain forward rotational motion of the controller plate and the plurality of controllers; wherein maintaining forward rotational motion of the controller plate and the plurality of controllers generates usable mechanical energy of the magnetic converter, and wherein application of an electric load to the field coil assembly generates usable electrical energy of the magnetic converter.

[0011] Other aspects and advantages of the invention will be apparent from the following description and the appended claims.

BRIEF DESCRIPTION OF DRAWINGS

[0012] FIGS. 1a and 1b show views of an energy producing magnetic converter in accordance with an embodiment of the present invention.

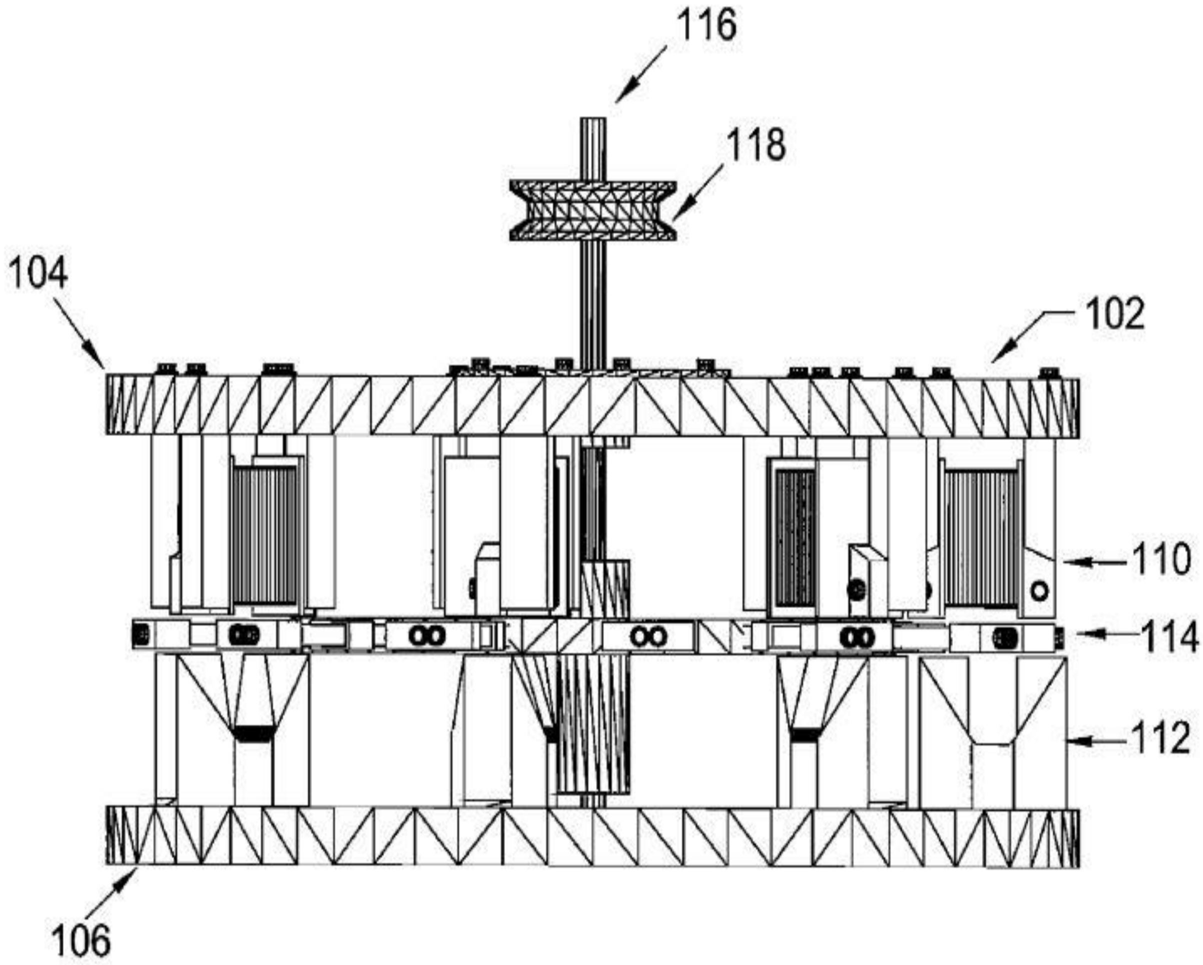


FIG. 1b

[0013] FIGS. 2a and 2b show views of a controller assembly of an energy producing magnetic converter in accordance with an embodiment of the present invention.

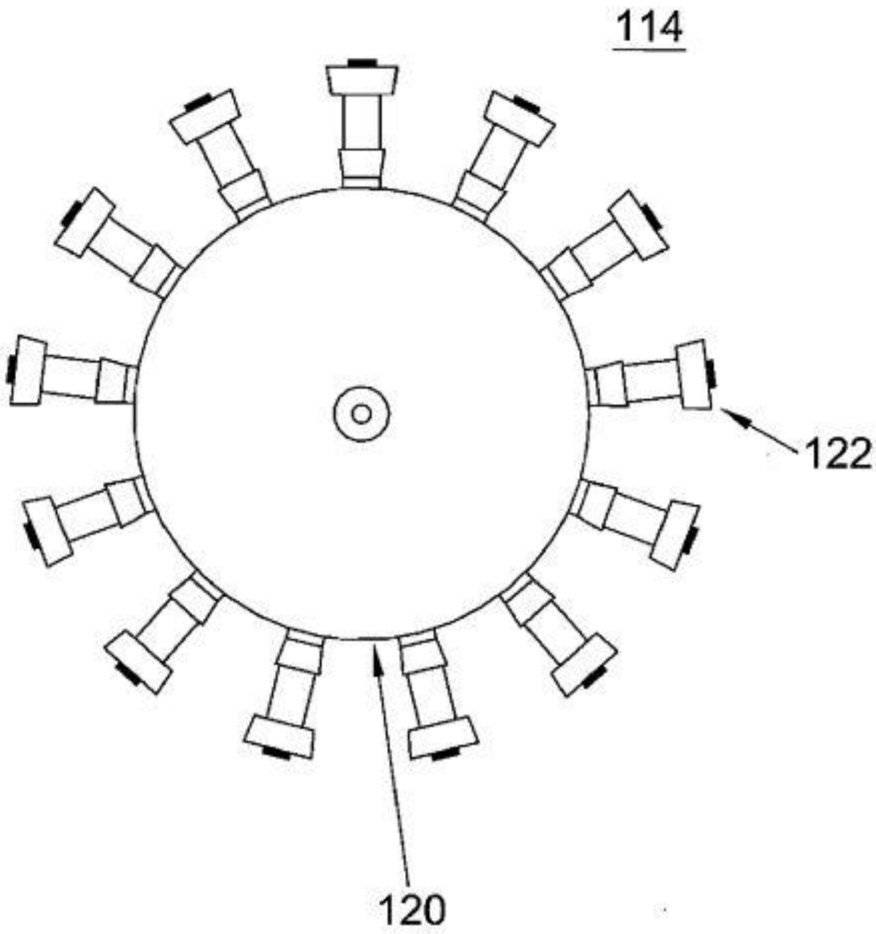


FIG. 2a

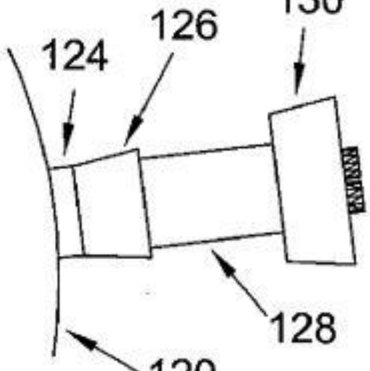


FIG. 2b

[0014] FIG. 3 shows a top view of a portion of an energy producing magnetic converter in accordance with an embodiment of the present invention.

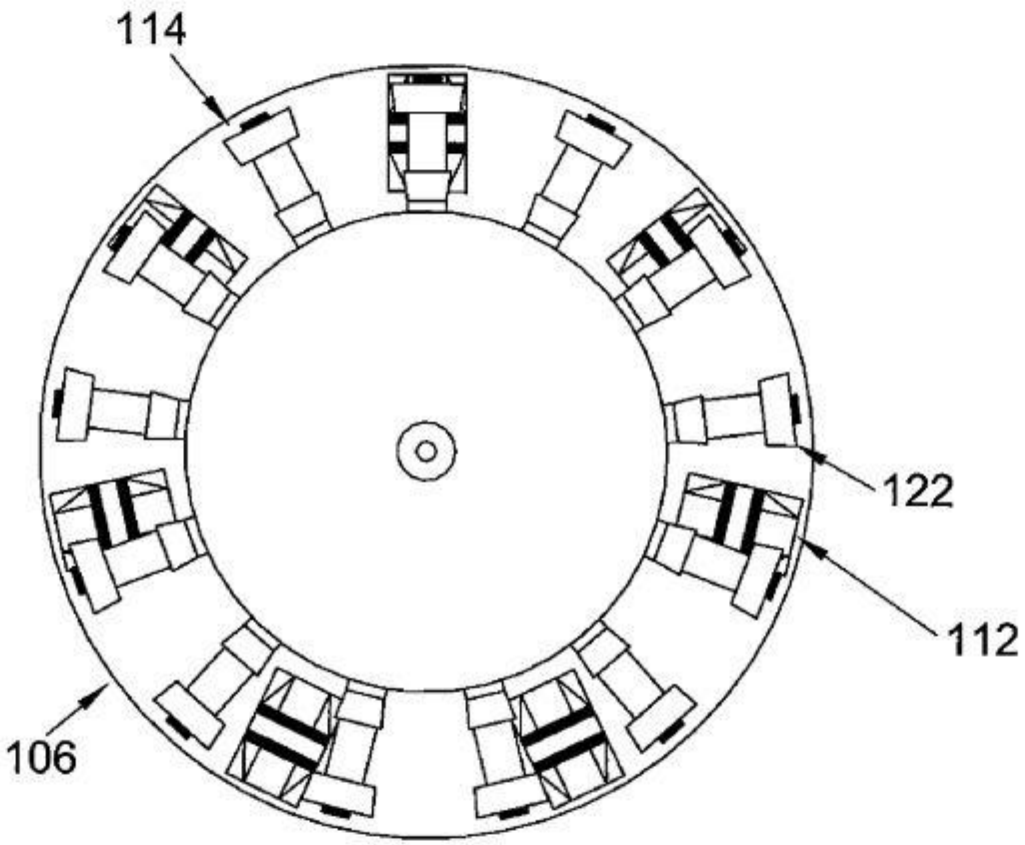


FIG. 3

[0015] FIGS. 4a and 4b show views of a section of an energy producing magnetic converter in accordance with an embodiment of the present invention.

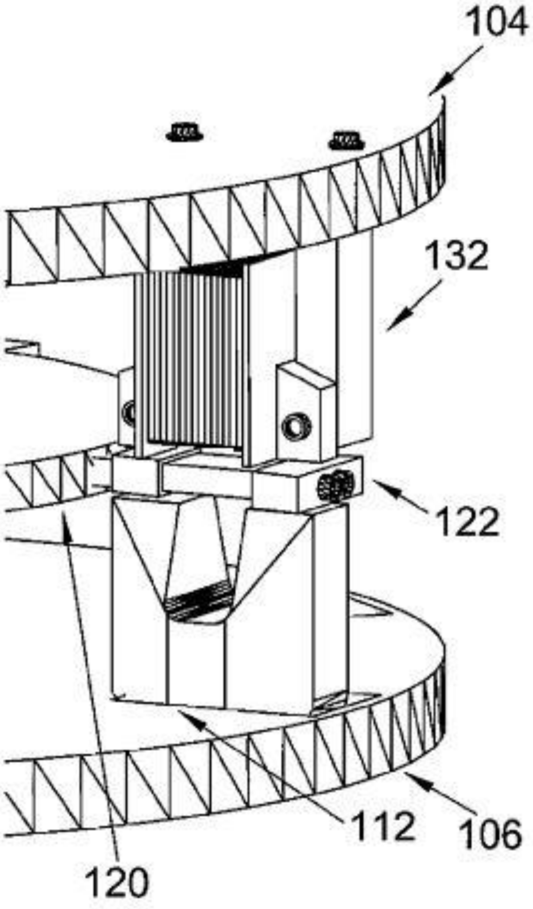


FIG. 4a

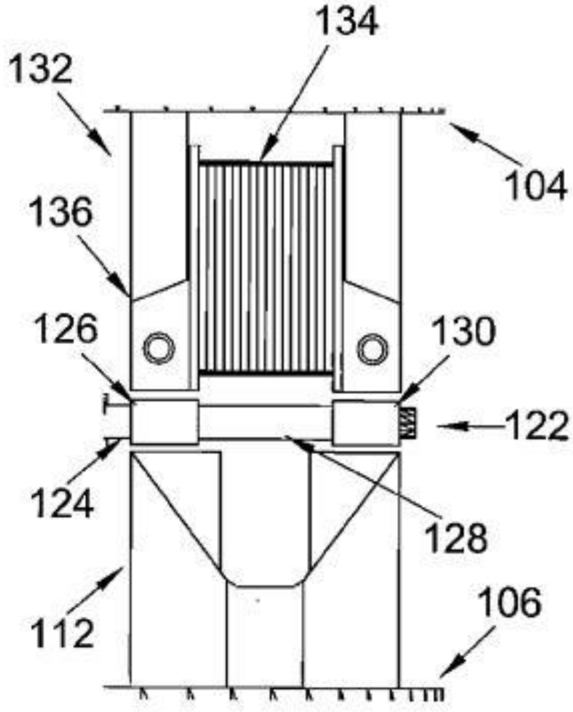


FIG. 4b

DETAILED DESCRIPTION

[0016] Embodiments of the present invention will now be described with reference to the above drawings. Like references are used in the figures to represent like elements.

[0017] Embodiments of the present invention relate to a method and apparatus for generating electrical and mechanical energy. Embodiments of the present invention further relate to an energy producing magnetic converter, referred to herein as a converter, that generates usable electric current and output torque. The converter is provided with a controller assembly rotatably secured between a plurality of field coil assemblies and a plurality of magnets. During a rotation of the controller assembly between the plurality of field coil assemblies and the plurality of magnets, electric current is generated in wire coils of the field coil assemblies, and counter-magnetic fields are induced around the wire coils. A pole of each counter-magnetic field is formed on the controller assembly, and counterforce present between magnetic fields of the plurality of magnets and the counter-magnetic fields cause and maintain forward rotational motion in the energy producing magnetic converter. Accordingly, because the forward rotational motion is maintained in the presence of sufficient counterforce, the magnetic converter outputs torque in addition to the electric current, thereby increasing an efficiency of the magnetic converter.

[0018] FIGS. 1a and 1b show exemplary views of an energy producing magnetic converter (100), herein referred to as converter (100). In FIG. 1a, an overview of the converter (100) is shown. In FIG. 1b, a side perspective view of the converter (100) is shown.

[0019] Referring to FIG. 1a, the converter (100) includes a housing (102) having a first plate (104), or surface, and a second plate (106), or surface. The first plate (104) and the second plate (106) are connected and supported using a plurality of housing brackets (108). Those skilled in the art will appreciate that, although the first plate (104), the second plate (106), and the plurality of housing brackets (108) are shown as separate elements, alternatively, they may be formed as a single element with at least first and second opposing surfaces.

[0020] Disposed along a lower surface of the first plate (104) are a plurality of field coil assemblies (110). Each of the plurality of field coil assemblies (110) is operatively connected to a set of lead wires (not shown) that may be connected to an electric load (not shown). Further, disposed along an upper surface of the second plate (106) are a plurality of magnets (112). As shown, each of the plurality of magnets (112) is positioned opposite of and aligned with a corresponding field coil assembly of the plurality of field coil assemblies (110). In some embodiments, each of the plurality of magnets (112) is a substantially horse-shoe shaped permanent magnet.

[0021] Positioned between the plurality of field coil assemblies (110) and the plurality of magnets (112) is a controller assembly (114). The controller assembly (114) is rotatably secured to the housing (102) using a drive shaft (116). The drive shaft (116) is positioned along centrally defined axes of the first plate (104) and the second plate (106) of the housing (102). Further, the drive shaft (116) is operatively coupled to the housing (102) in a manner that allows the drive shaft (116) to rotate without transmitting such rotation to the housing (102), the plurality of field coil assemblies (110), or the plurality of permanent magnets (112). Thus, the controller assembly (114) is free to rotate relative to the plurality of field coil assemblies (110) and the plurality of magnets (112) when the electric load is applied to the plurality of field coils (110).

[0022] In addition, secured around the drive shaft (116) and outboard of the housing is a pulley (118). In some embodiments, the pulley (118) may be connected to a torque-supplying device, e.g., a starter or a motor (not shown), in order to initiate a rotation of the drive shaft (116), and, hence, of the controller assembly (114). Note that, as will be described below with respect to the operation of the converter (100), torque need not be continually supplied to maintain operation of the converter (100).

[0023] Referring to FIG. 1b, a side perspective view of the converter (100) is shown. Note that, in this view, the plurality of housing brackets (108) are not shown in order to aid in the understanding of the invention. In particular, a cross-sectional character of the converter (100) is visible. Further, as is also more easily visible, a small separation space exists between the controller assembly (114) and each of the plurality of field coil assemblies (110), thereby ensuring that the rotation of the controller assembly (114) is not transmitted to the plurality of field coil assemblies (110). In addition, a similar separation space exists between the controller assembly (114) and each of the plurality of magnets (112) to ensure that the rotation of the controller assembly (114) is not transmitted to the plurality of magnets (112).

[0024] FIGS. 2a and 2b show exemplary views of the controller assembly (114) of the converter (100). FIG. 2a shows a top view of the controller assembly (114), and FIG. 2b shows a sectional view of the controller assembly (114).

[0025] Referring to FIG. 2a, the controller assembly (114) includes a controller plate (120) and controllers (122). The controllers (122) are arranged around a perimeter of the controller plate (122) and are positioned in substantially equally spaced intervals. In some embodiments, a set of thirteen controllers (122) is used in the controller assembly (114). Those skilled in the art, however, will appreciate that a number of controllers (122) used in the invention may be altered without departing from the scope of the invention. Those skilled in the art will also appreciate that a spacing of the controllers (122) may be altered without departing from the scope of the invention.

[0026] Referring to FIG. 2b, a sectional view of the controller assembly (114) is shown. In order to aid in the understanding of the invention, only a portion of the controller plate (120) and a single controller (122) are shown in this view. The controller (122) includes the following: first and second spacers (124,128), and first and second magnetic sections (126,130). A first surface of the first spacer (124) is secured to the controller plate (120), and a second surface of the first spacer (124) is secured to a first surface of the first magnetic section (126). A second surface of the first magnetic section (126) is secured to a first surface of the second spacer (128), and a second surface of the second spacer (128) is secured to a surface of the second magnetic section (130). In some embodiments, the first and second spacers (124, 128) are formed from a non-magnetic material such as aluminum, brass, or hard plastic. Also, in some embodiments, the first and second magnetic sections (126,130) are formed from a magnetic field transmitting material such as steel.

[0027] FIG. 3 shows a top view of a portion of the converter (100). Only the controller assembly (114), the plurality of permanent magnets (112), and the second plate (106) are shown in order to aid in the understanding of the layout of the converter (100). In particular, a layout of the plurality of magnets (112), and, hence, their corresponding plurality of field coil assemblies (110, not shown), can be determined. Further, an alignment of the controllers (122) of the controller assembly (114) with the plurality of magnets (112) is illustrated.

[0028] Referring to FIG. 3, each of the plurality of magnets (112) is disposed along the second plate (106) in substantially equally spaced intervals. In some embodiments, seven magnets are used as the plurality of magnets (112). Further, because each of the magnets (112) is disposed opposite of and aligned with a corresponding field coil assembly, an equal number of field coil assemblies (110) is utilized. Thus, in some embodiments, seven field coil assemblies are used as the plurality of field coil assemblies (110).

[0029] Further, note that each of the controllers (122) is disposed such that, during the rotation of the controller assembly (114), the first and second magnetic sections (126, 130) of at least one controller (122) passes over at least one of the plurality of magnets (112). In particular, in embodiments where the at least one of the plurality of magnets (112) is a horse-shoe shaped permanent magnet, the first magnetic section (126) will pass over a first leg of the magnet (112), and the second magnetic section (130) will pass over a second leg of the magnet. In addition, although not shown, both the first and second magnetic sections (126, 130) pass beneath the magnet's corresponding field coil assembly.

[0030] Those skilled in the art will appreciate that a number of permanent magnets, and, hence, a number of corresponding field coil assemblies used in the invention may be altered without departing from the scope of the invention. Those skilled in the art will also appreciate that a spacing of the plurality of magnets (112) and the plurality of field coil assemblies (110) may be altered without departing from the scope of the invention.

[0031] FIGS. 4a and 4b show exemplary views of a section of the converter (100). FIG. 4a shows a perspective view of said section, and FIG. 4b shows a side view of said section. Only a portion of the first and second plates (104,106), a portion of the controller assembly (114), one of the plurality of magnets (112), and a single field coil assembly (132) are shown in order to aid in the understanding of the layout of the converter (100). Referring to FIG. 4a, the controller plate (120) of the controller assembly (114) has been rotated such that one of the controllers (122) has come into alignment with one of the plurality of magnets (112) and the corresponding field coil assembly (132). As can be seen, the controller (122) passes across the magnet (112) and the field coil assembly (132) and through a spacing interval separating the magnet (112) from the field coil assembly (132).

[0032] Referring to FIG. 4b, a side view of the layout illustrated in FIG. 4a is shown. As can be seen and as is described for FIG. 1b, a separation space exists between the controller (122) and the field coil assembly (132), as well as a separation space between the controller (122) and the magnet (112). Thus, the controller (122) is able to freely rotate through the spacing interval between the field coil assembly (132) and the magnet (112) without transmitting that rotation or friction to the field coil assembly (132) and/or the magnet (112). Accordingly, the field coil assembly (132) and the magnet (112) remain stationary with respect to each other and the controller (122) during an operation of the converter (100).

[0033] Referring again to FIG. 4b, the field coil assembly includes a wire coil (134) supported and secured to the first plate (104) of the housing (102) using support brackets (136) disposed on opposing faces of the wire coil (136). Those skilled in the art will appreciate that although a pair of support brackets (136) are shown, a number and/or configuration of the support brackets may be altered without departing from the scope of the invention. Further, as described above for FIG. 1a, the wire coil (134) is connected to the set of lead wires (not shown) which, in turn, are connected to the electric load (not shown) during the operation of the converter (100)

[0034] While the controller (122) is in alignment with the field coil assembly (132), the first and second magnetic sections (126,130) are positioned beneath the support brackets (136), and, thus, outboard a perimeter of the wire coil (134). At the same time, as mentioned above, the first and second magnetic sections (126, 130) are aligned with the first and second legs of the magnet (112). Further, the first spacer (124) is positioned outboard of field coil assembly (132) and the magnet (112), while the second spacer (128) is positioned beneath and is aligned with the wire coil (134).

Operation

[0035] An operation of the converter (100) will now be described with reference to the figures and the above description.

[0036] With reference to FIGS. 1a and 4b, upon application of the electric load (not shown) to the wire coil (134), the required input torque to the converter (100) decreases from idle. Idle on the converter (100) is defined as an amount of torque required to turn the converter (100) with no electric load applied. Accordingly, a rotation of the drive shaft (116), and, hence, the controller assembly (114) is initiated by an application of torque to the pulley (118). The torque is applied to the pulley (118) by the torque-supplying device, e.g., the starter or the motor (not shown). In some embodiments, the torque-supplying device is a manually activated starter, such as a winding shaft attached to a spring, or a combination of said starter and a motor. In alternate embodiments, the torque-supplying device is an electrically activated starter or a combination of said starter and a motor.

[0037] With reference to FIGS. 3, 4a, and 4b, as the controller assembly (114) rotates, the controllers (122) pass through the spacing intervals separating the plurality of field coils (110) and the plurality of magnets (112). During the time that each particular controller (122) passes through a particular spacing interval, a magnetic field, or flux, is generated between the field coil assembly (132), that controller (122), and the magnet (112). As the controller (122) is rotated through the spacing interval, the first and second magnetic sections (126, 130) of the controller (122) sweep past the perimeter of the wire coil (134). Accordingly, the location and intensity of the magnetic flux changes, and a voltage is induced in the wire coil (134). Further, because an electric load is applied to the wire coil (134), electric current is generated and is drawn from the wire coil (134) through the set of lead wires (not shown).

[0038] As electric current flows through the wire coil (134), a magnetic field having a first pole and a second pole is induced around the wire coil (134). The first pole is located on a side of the wire coil (134) nearest the spacing interval, and the second pole is located on a side of the wire coil substantially opposite of the first pole. Further, during the time that each particular controller passes through the spacing interval, the first pole is formed on the controller (122). Note that a direction of a polarity of the wire coil's (134) magnetic field is counter to a direction of a polarity of the magnetic field existent between the magnets (112), and, hence, the magnetic field induced around the wire coil (134) is referred to herein as a counter-magnetic field.

[0039] Attractive and repulsive forces between the poles of counter-magnetic field and poles of the magnets' (112) magnetic field causes the controller (120) to be pushed sideways away from the wire coil (134). Herein, these attractive and repulsive forces are referred to as counterforce. The counterforce causes forward rotational motion in the controller assembly (114), thereby transmitting torque to the drive shaft (116). Advantageously, an input torque required to maintain operation of the converter (100) is decreased. Further, said counter-magnetic field is absorbed by the controller (122) and transformed back into its original state.

[0040] Further, magnetic flux of the counter-magnetic field is discharged through the controller

(122) as well as absorbed through the controller (122) in accordance with an amount of electric current generated, and, hence, with an amount of electric load applied to the wire coil (134). Accordingly, as the amount of electric load is increased, the forward rotational motion of the controller assembly increases, further decreasing the required input torque. Advantageously, in an embodiment where sufficient counterforce is generated and/or sufficient electric load is applied, the input torque is not required to maintain a momentum of the controller assembly (114), and output torque may be supplied from the converter (100) to a motor (not shown) operatively connected to the pulley (118). Accordingly, in said embodiment, the converter (100) outputs both electric current and torque, and, thus, provides usable electrical and mechanical energy.

[0041] Referring to FIGS. 2b and 4a, upper and lower surfaces of the first and second magnetic sections (126, 130) are formed in a substantially trapezoidal shape, with a shorter substantially parallel side of each surface facing toward the controller plate (120) and a longer substantially parallel side of the surfaces facing away from the controller plate (120). Further, upper and lower surfaces of the second magnetic section (130) are larger than upper and lower surfaces of the first magnetic section (126). Advantageously, such an arrangement ensures that as the controller (122) is rotated through a particular spacing interval, the first magnetic section (126) and the second magnetic section (130) both remain between the field coil assembly (110) and the magnet (112) for substantially equal amounts of time. Thus, the magnetic field, and, hence, the counter-magnetic field, may be generated for a long enough period of time to produce sufficient counterforce on the controller (122).

[0042] Referring to FIG. 3, note that a number of controllers (122) provided in the controller assembly (114) is greater than a number of magnets (112), and, hence, a number of field coil assemblies (132) provided in the converter (100). Accordingly, sufficient counter-magnetization is produced in the controller assembly (114) to maintain the forward rotational motion of the converter (100). Advantageously, an input torque required to maintain operation of the converter (100) is decreased.

[0043] While the invention has been described with respect to a limited number of embodiments, those skilled in the art, having benefit of this disclosure, will appreciate that other embodiments can be devised which do not depart from the scope of the invention as disclosed herein. Accordingly, the scope of the invention should be limited only by the attached claims.

Ken WHEELER, *et al.*

Magnet Motor

Contact --

http://twmtec.com/

TWM Technology
3490 E N Union Road
Bay City, Michigan 48706

Henry Johnson
Bay City, Michigan
phone:989-684-7050

Video : http://www.youtube.com/watch?v=cg78IuBPrZs

---

http://blog.mlive.com/bctimes/2008/11/this_motor_spins_with_magnets.html
November 20, 2008

This Motor Spins with Magnets and Batteries

by

Amy L. Payne

Tim Wheeler of Burt, left, and Todd Thorp of Saginaw display their electro-magnetic motor that they say has virtually unlimited applications. Wheeler says the motor could be scaled up to power everything from automobiles to appliances, running for up a year without being plugged in.

Tim Wheeler seems to have done the impossible, inventing an electromagnetic engine that runs almost on its own.

He showed off a prototype of the "EME," for Electro Magnetic Energy, on Wednesday in Bay City.

"It does a lot more than what I'm showing you or telling you," said Wheeler, a 43-year-old "jack of all trades" from Burt near Birch Run.

His small, patented motor sips power from six motorcycle batteries while also recharging them. It works by using positive and negative charges to push and pull magnets mounted to a shaft inside a plastic case. There's a recovery system that prolongs the battery life.

Wheeler says the EME could be scaled up to power everything from automobiles to appliances, running for up a year without being plugged in.

He and others involved with TWM Technology in Bay City are looking for investors or government funding to continue their research.

So far, they say they've sunk three years and more than $50,000 into a large version of the EME installed into a 1951 Ford pickup.

That big engine runs, using the same six batteries, but needs work, because it was built with metal parts. A key to the EME is using plastic so as not to interfere with the magnets, said TWM President Todd Thorp, a Bay City native who now lives in Saginaw.

"I want to put it into actual production," Wheeler said of his invention, and eliminate all or most of the use of gasoline in America.

The hope is to license the technology and have another company make the motors.

For now, Wheeler said he makes a living hauling scrap, fixing cars and doing other odd jobs.

He says he was "raised in a scrapyard" and came to understand electricity at a young age.

"We use the full effect of the magnetic field, unlike any other motor," he said.

The prototype EME has been shown to be up to 82 percent efficient, he said. Wheeler said he's run the little motor for an hour and only used 2 percent of the battery power.

Wheeler started working on the motor "out of curiosity."

The prototype was made by hand, in his garage, with about $100 worth of parts. He thinks larger versions could be built and sold for less than gas-powered engines.

The prototype could be used to move a moped at speeds of up to 50 mph, said Henry Johnson, a Bay City real estate broker that hosted Wednesday's showing.

Johnson is part of Angel Marketing in Burt, which is trying to promote the EME. The group also includes T.J. Swihart of Bay City, a retired scientist from Dow Corning Corp.

So far, Johnson said he's contacted General Motors, Ford and Chrysler officials about the EME, but they haven't been willing to talk to him - yet.

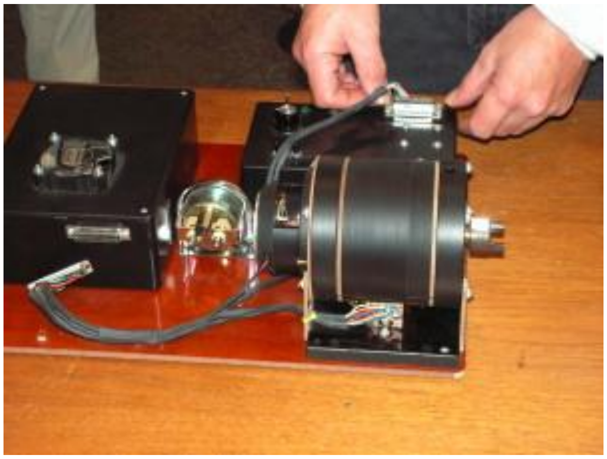
Wheeler's next goal is to rebuild the large motor and show it off on the roads of Michigan.

Thorp, a former small business owner, said he's committed to the EME partially because of his 4-year-old son, Zackary.

Unlike gas engines, which pollute the environment, the EME runs clean, without as much as a tailpipe, he said.

"Air quality for the future," Thorp said of his motivation. "Not just for him, but for everyone."

Johnson said potential investors can call him at 684-7050.



http://peswiki.com/index.php/Directory:Electro_Magnetic_Energy_(EME)_by_TWM_Technology
Dec. 4, 2008

ElectroMagneticEnergy (EME) by TWM_Technology

TWM Technology's Electro Magnetic Energy (EME) sips power from six motorcycle batteries while also recharging them.

The present prototype EME has been shown to be up to 82 percent efficient. It is capable of tremendous speed. One of the prototypes has achieved 10,000 rpm. They expect that a more robust, optimized prototype could possibly handle up to 20-25,000 rpm.

When the motor runs above a certain speed, the shaft rides on a magnetic cushion, not on bearings, eliminating the metal-on-metal wear all together.

The motor produces no heat but runs at ambient temperature, so super-cheap, recycled materials could be used in its manufacturing.

The company expects that the motor could be scaled to power everything from cell phones to air craft carriers.

They expect their next prototype (completion expected by end of Jan. 2009) could be over 100% efficient, harnessing permanent magnet power which may be drawing it from some kind of universal energy source that nature provides inexhuastibly and for free.

"We've figured out how to make magnets the fuel." -- Todd Thorpe (Jan. 5, 2009)

Interviews by Sterling Allen / PESN

http://pesn.com/Radio/Free_Energy_Now/recordings/2008/081201_HenryJohnson_TWMTechnologyInc.mp3
(11 Mb; mp3) Dec. 1, 2008 Sterling Allen conducted a 1-hour, live interview with Henry Johnson, Marketing Director for TWM Technology, Inc.

http://pesn.com/Radio/Free_Energy_Now/recordings/2009/090105_ToddThorpe_TimothyWheeler_TWM_Technology.mp3
Jan. 5, 2009 -- 1-hour interview with Todd Thorpe (CEO) and Timothy Wheeler (Inventor).

---

http://pesn.com/2010/09/11/9501701_TWM_gets_patent_on_OU_electromagnetic_motor/
Pure Energy Systems News
Sept. 11, 2010

TWM gets US patent on overunity electromagnetic motor

by

Sterling D. Allan

Allegedly, not only does TWM Technology, LLC's motor produces enough electricity to keep its batteries topped off, with energy left over for other use, but it also produces torque. The motor does not heat up under load, so it can be built from cheaper materials, including wood and plastic.

Figure 1 from the TWM patent application US20080143206.

Johnson says their new design simplifies this by using plastic components.

Animation by Kevn Lambson of PES Network, Inc..

TWM says this is an accurate depiction.

TWM's 15 x 30-inch motor prototype is expected to produce 600 HP and 5,000 VAC -- enough to power a pickup truck.

Henry Johnson, Marketing Director for TWM Technology, LLC, contacted me on Sept. 7 to inform me that one of their electric motor patents had been awarded that same day.

The patent describes the layout of the motor, but it doesn't say that with this layout the motor is allegedly able to run from a battery, keep that battery charged, and produce excess energy for use -- harvesting electrical energy from the environment somehow in the process. It's like a solar array, harvesting energy from nature, except that the source of power doesn't rise and set each day, nor is it obstructed by clouds, dust or bird droppings. Put simply, it is claimed (not in the patent) to be a self-looped system with energy left over for use. The excess comes from nature through the set-up.

The awarded patent confirms that the design is unique.

Imagine a motor that could power a pickup truck without stopping for fuel; and the motor is just as powerful but just 1/3 the size of the regular engine. That is the prototype they are presently working on, and think they might have worked out soon.

Meanwhile, Johnson says they do have other prototypes that can be seen and demonstrated that exhibit the overunity effect -- more power out than is put in. One prototype is made of wood rather than metal and spins at 15,000 rpm. Another prototype puts out 1/3 of a horsepower, and runs up to 10,000 rpms. He said the "prototype motor works beautifully."

They have had a hard time getting support from mainstream scientists because the claim goes against conventional "laws of physics" as to what is and is not possible. "The one one who really understands what we're doing is Tom Bearden," said Johnson. I was in on a three-way conference call with Bearden last year in which he described why TWM was able to do what they are doing. It was amazing.

The way Johnson describes it is that "the process magnifies the magnetic energy of a permanent magnets." Put simplistically, as two magnets in the rotor pass by five electromagnets in the stator with alternating polarities, there are 20 compressions in each rotation because both sides of the magnet are being used, and there are two magnets in the rotor. Johnson explains that when the motor spins at 4,000 rpms the permanent magnets are being pulsed ("magnified") 70 times per second. Secondary windings in each coil of the electromagnet pick up back EMF and dump it into a capacitor to recharge the battery. And not only do the permanent magnets not deplete, but the "compression" effect actually tends to strengthen the magnets. Furthermore, the faster the motor spins, the less current it draws proportionately. And it doesn't produce heat due to its efficiency, even under heavy load, so it could be manufactured from cheaper materials including plastic and wood. The motor has a lot of torque.

"We've figured out how to make magnets the fuel", says Todd Thorpe, TWM President.

As of the writing of this story, the USPTO patent database is current to Sept. 7, but apparently doesn't include the TWM patent yet.

You can view the patent application titled simply "Electric motor", with lead inventor, Kenny L. Wheeler, filed on Aug. 13, 2007.

Back in 2008 TWM claimed to have run a moped for 8 miles in a gymnasium, leaving the batteries with the same charge they started out with. The combined weight of the moped and rider was about 350 pounds.

Johnson says that they are "very close" to being to the point where they can commercialize this technology. He welcomed our New Energy Congress to arrange to do a validation of their technology. As mentioned in our last story, we are presently seeking a grant to finance such validations, as they are not cheap to execute.

USP Application 2008/0143206

Electric Motor

19-Jun-2008
Inventors/Applicants
Wheeler, Kenny , et al

Abstract -- An electric motor that includes a first rotor, a second rotor, a first permanent magnet, a second permanent magnet, a stator, an electromagnet, a shaft, a shaft rotation position sensor and an electric switch, the first rotor being mounted on the shaft, the second rotor being mounted on the shaft and separated from the first rotor by the stator, the first permanent magnet being located in the first rotor, the second permanent magnet being located in the second rotor, the north south orientation of the first permanent magnet being the same as the north south orientation of the second permanent magnet, the north south axis of the first and second permanent magnets each being spaced radially from the longitudinal axis of the shaft, the north south axis of the first and second permanent magnets each being about parallel with the longitudinal axis of the shaft, the north south axis of the first permanent magnet being spaced rotationally from the north south axis of the second permanent magnet, the electromagnet being located in the stator so that when the electromagnet is energized the north south axis of the electromagnet is about parallel with the longitudinal axis of the shaft and spaced radially from the longitudinal axis of the shaft, the shaft rotation position sensor being positioned to sense the rotation position of the shaft so that the electromagnet can be energized by way the electric switch at a rotation position of the shaft when the first, the second or both the first and second permanent magnets are near the electromagnet to cause the shaft to rotate.

Classifications: International: H02K 16/02; H01F 6/00; National: 310/114; 335/216 ;International: H02K 16/00; H02K 16/02; H01F 6/00; European: H02K 21/24; H02K 1/18A; H02K 1/27D; H02K 1/30

BACKGROUND OF THE INVENTION

This application claims the benefit of priority to U.S. Provisional Patent Application Ser. No. 60/875,654 filed Dec. 19, 2006. The instant invention relates to a permanent magnet electric motor. Permanent magnet electric motors are well known in the art and are available in many unique variations. The commutator system of a permanent magnet electric motor can be replaced by a position sensor/solid state switch system to produce the well known “brushless” motor. U.S. Pat. No. 6,849,984 discloses a permanent magnet electric motor having permanent magnets mounted in a rotor and electromagnets positioned adjacent the face of the rotor.

Despite the significant improvements that have been made in the field of electric motors, there remains a need for additional improvements to such motors.

SUMMARY OF THE INVENTION

The instant invention is an electric motor, comprising a first rotor, a second rotor, a first permanent magnet, a second permanent magnet, a stator, an electromagnet, a shaft, a shaft rotation position sensor and an electric switch, the first rotor being mounted on the shaft, the second rotor being mounted on the shaft and separated from the first rotor by the stator, the first permanent magnet being located in the first rotor, the second permanent magnet being located in the second rotor, the north south orientation of the first permanent magnet being the same as the north south orientation of the second permanent magnet, the north south axis of the first and second permanent magnets each being spaced radially from the longitudinal axis of the shaft, the north south axis of the first and second permanent magnets each being about parallel with the longitudinal axis of the shaft, the north south axis of the first permanent magnet being spaced rotationally from the north south axis of the second permanent magnet, the electromagnet being located in the stator so that when the electromagnet is energized the north south axis of the electromagnet is about parallel with the longitudinal axis of the shaft and spaced radially from the longitudinal axis of the shaft, the shaft rotation position sensor being positioned to sense the rotation position of the shaft so that the electromagnet can be energized by way the electric switch at a rotation position of the shaft when the first, the second or both the first and second permanent magnets are near the electromagnet to cause the shaft to rotate.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an exploded view of a portion of an electric motor embodiment of the instant invention;

FIG. 1

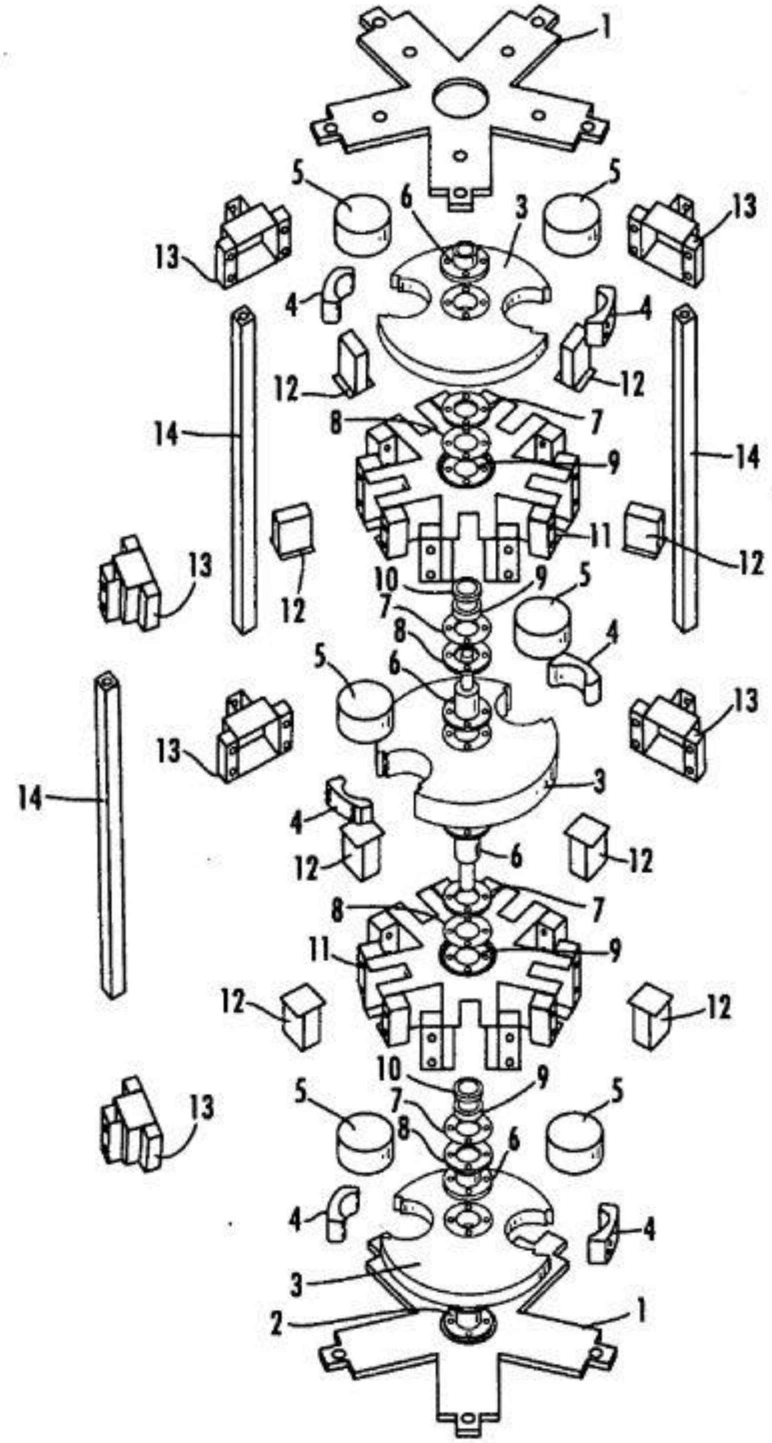


FIG. 2 is an exploded view of a commutator and slip ring portion of an electric motor embodiment of the instant invention;

FIG. 2

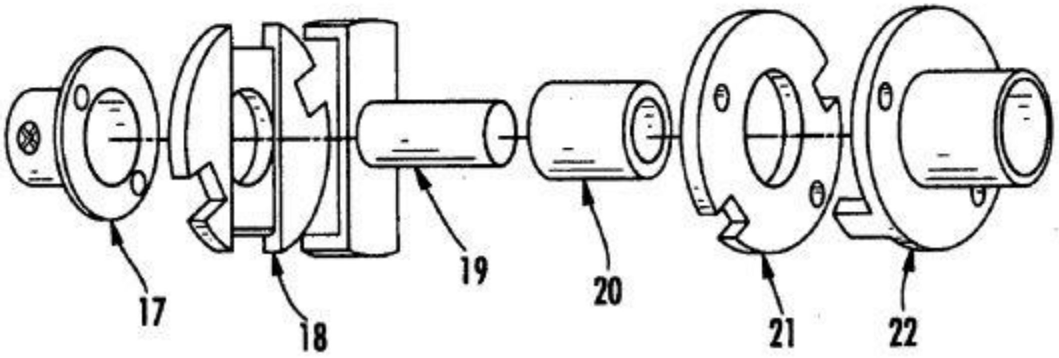


FIG. 3 is a schematic view of a power transistor switching circuit of an electric motor embodiment of the instant invention;

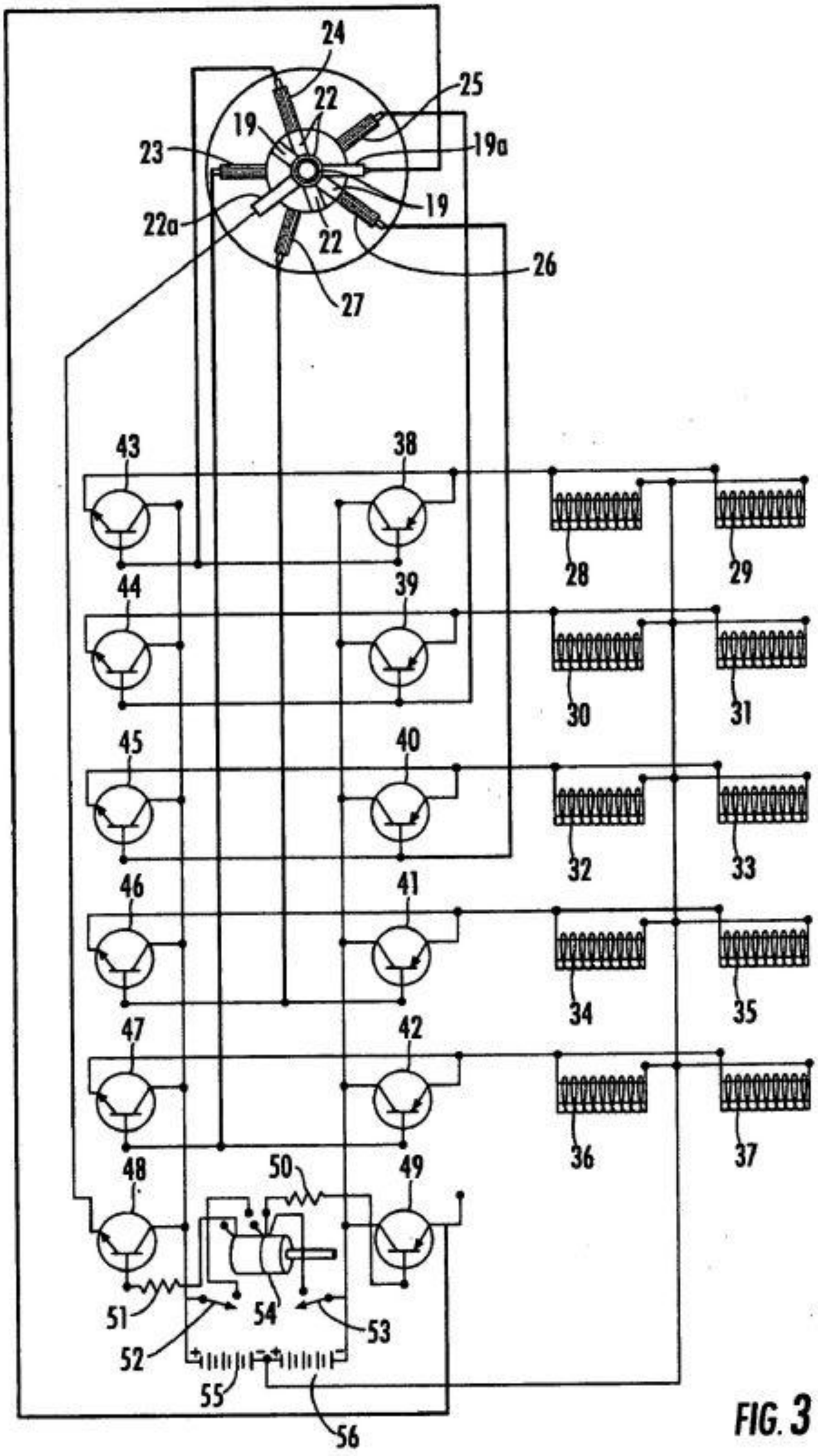


FIG. 3

FIG. 4 is a schematic view of the interaction of the permanent magnets and electromagnets of the embodiment shown in FIG. 1 as the permanent magnets rotate toward the electromagnets;

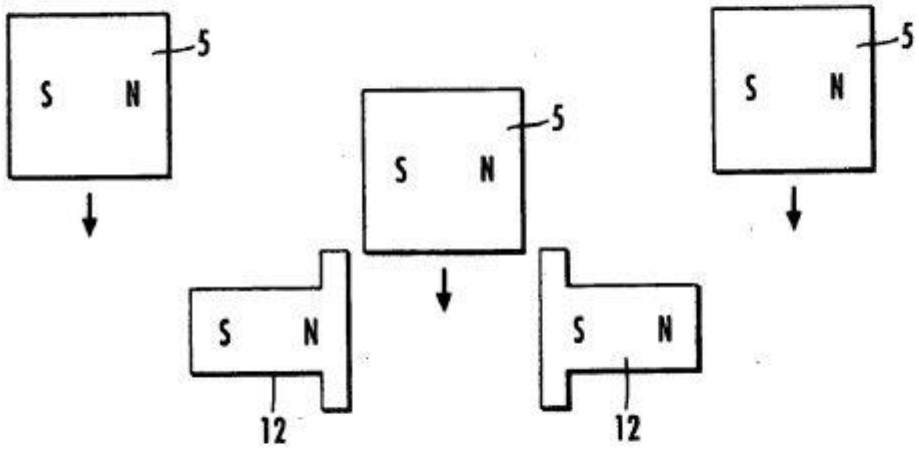


FIG. 4

FIG. 5 is a schematic view of the interaction of the permanent magnets and electromagnets of FIG. 4 as the permanent magnets rotate near the position where the polarity of the electromagnets are reversed;

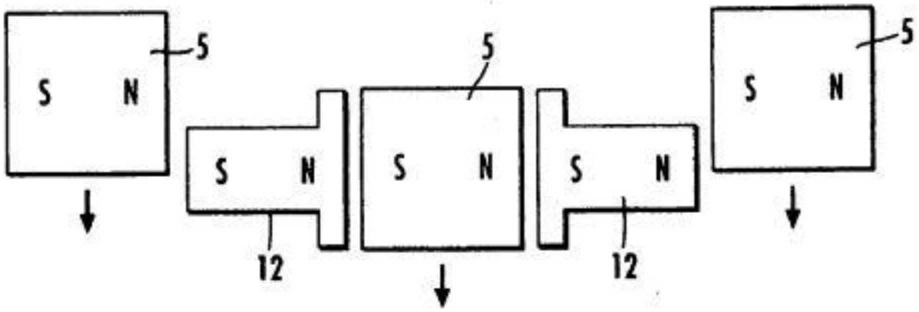


FIG. 5

FIG. 6 is a schematic view of the interaction of the permanent magnets and electromagnets of FIG. 5 as the permanent magnets rotate past the position where the polarity of the electromagnets are reversed;

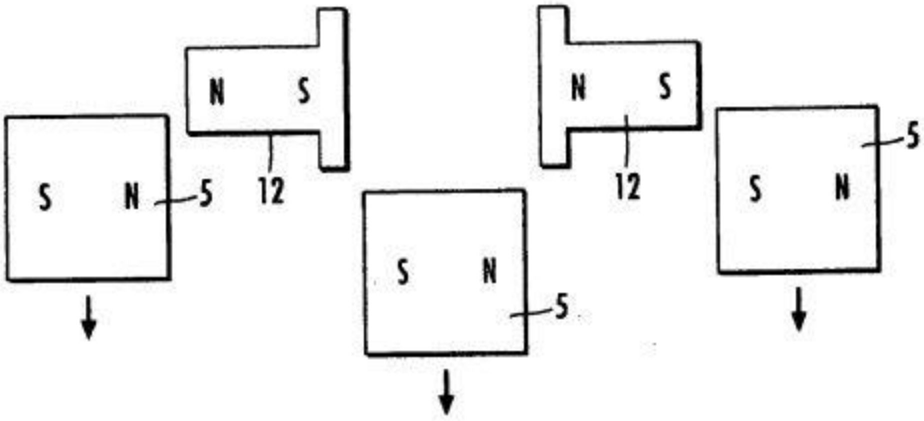


FIG. 6

FIG. 7 is a schematic view of the interaction of the permanent magnets and electromagnets of FIG. 6 as the permanent magnets rotate past the position where the electromagnets are not energized;

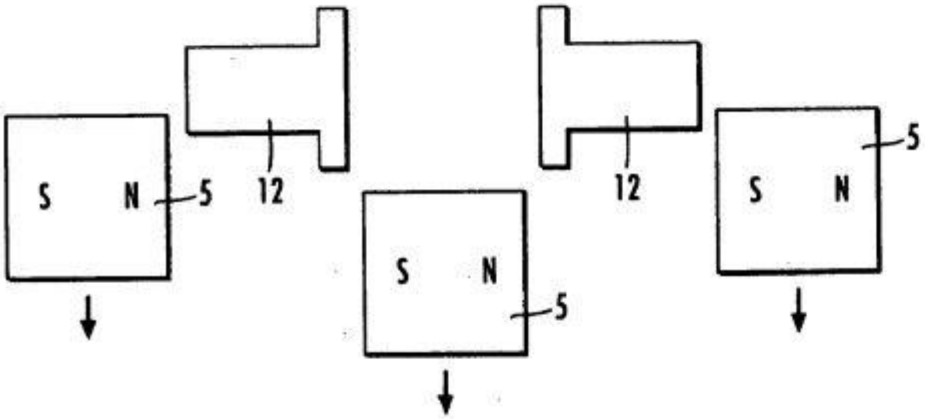


FIG. 7

FIG. 8 is a side view of the shaft to be used with the motor of FIG. 1;

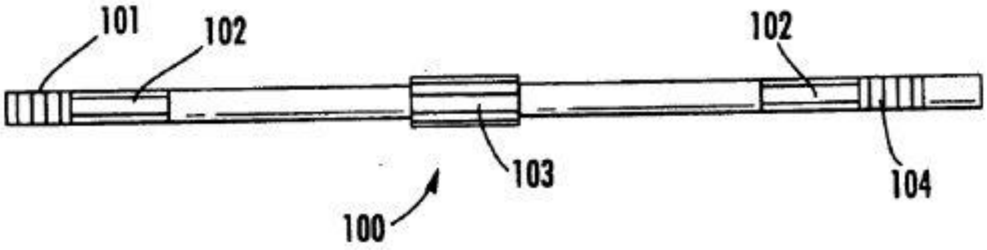


FIG. 8

FIG. 9 is an enlarged view of a permanent magnet to be used with the motor of FIG. 1, the permanent magnet having a retaining groove therein; and

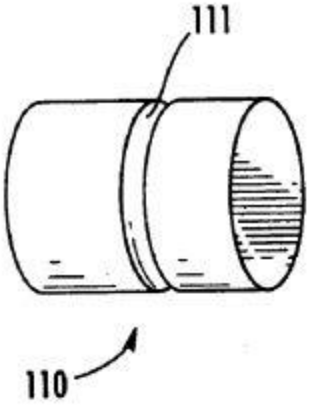


FIG. 9

FIG. 10 is an enlarged view of an electromagnet core to be used with the motor of FIG. 1 showing its laminated structure.

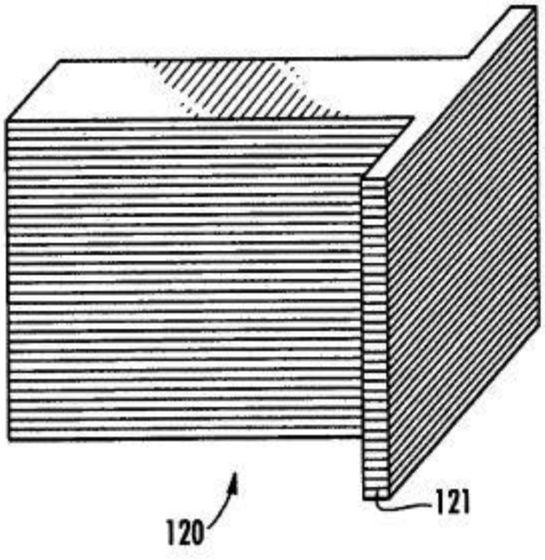


FIG. 10

DETAILED DESCRIPTION

Referring now to FIG. 1, therein is shown an exploded view of a portion of an electric motor embodiment of the instant invention laid out along the longitudinal axis of a shaft (shown in FIG. 8). Shaft bearing mounts 1 are used to support shaft bearings 9. Rotor adapters 2 are attached to the rotors 3. Rotors 3 are preferably made of a nonmagnetic material such as glass fiber reinforced polycarbonate polymer. Permanent magnets 5 are mounted in the rotors 3 and held in place by magnet caps 4. Splined attachment hubs 6 are attached to rotors 3 for receiving a splined portion of the shaft. Shaft bearing retainer plates 7 and gaskets 8 are used to retain the bearings 9 in position. Shaft oil seals 10 retains lubricant in bearings 9. Electromagnets 12 (only the iron core of the electromagnets is shown and not the winding of copper magnet wire around the core, the winding being potted in a thermoset polymer) are mounted in stators 11 and retained by electromagnet caps 13. Shaft bearing mounts 1 are attached to main housing retainer rails 14. The north south orientation of the permanent magnets 5 are all the same and are about parallel with the longitudinal axis of the shaft. The north south axis of the permanent magnets of the outer rotors are spaced rotationally from the north south axis of the permanent magnets of the central rotor. The electromagnets 12 are located in the stator so that when the electromagnets are energized the north south axis of the electromagnets 12 are about parallel with the longitudinal axis of the shaft. A shaft rotation position sensor (described in detail below) is positioned to sense the rotation position of the shaft so that specific electromagnets 12 can be energized by way of the an electric switch at a rotation position of the shaft when specific permanent magnets 5 are near the energized electromagnets 12 to cause the shaft to rotate.

Referring now to FIG. 2, therein is shown an exploded view of a commutator and slip ring portion of the electric motor embodiment of FIG. 1 including commutator retainer 17 which is attached at end of the shaft of the motor by way of a set screw. Positive copper commutator/slip ring 22 engages with first plastic insulator spacer ring 21, over plastic insulator tube 20, over copper negative commutator/slip ring 19 which engages with second plastic insulator spacer ring 18, the whole assembly being attached to the retainer 17. Five brushes (not shown in FIG. 2 but shown as elements 23, 24, 25, 26 and 27 in FIG. 3) are arranged in a symmetric manner radially of and in contact with the commutator while two brushes (not shown in FIG. 2 but shown as elements 19a and 22a in FIG. 3) are in contact with the extended cylindrical slip ring portions of the negative and positive commutator portions 19 and 22.

Referring now to FIG. 3, therein is shown a schematic view of a power transistor switching circuit of the electric motor embodiment of the instant invention of FIGS. 1 and 2. The power transistor switching circuit includes: NPN power transistors 43, 44, 45, 46, 47 and 48; PNP power transistors 38, 39, 40, 41, 42 and 49; electromagnet coils 28, 29, 30, 31, 32, 33, 34, 35, 36 and 37; a dual 500,000 ohm potentiometer 54; switches 52 and 53; 1,000 ohm resistors 50 and 51; and batteries 55 and 56. The use of the transistor switching circuit significantly reduces the current carried by the brushes. However, it should be understood that a transistor (or other solid state) switching system is not required in the instant invention. Furthermore, the shaft rotation position sensing means is not limited to a commutator but can be any suitable means such as a hall effect sensor or an optical system. Thus, the motor of the instant invention can be of the “brushless” type or the brush type or a hybrid system.

Referring again to FIG. 1, preferably the one north south end of the core of the electromagnets 12 is larger than the other north south end of the core of the electromagnet with the larger ends facing the central rotor. The degree of rotational off-set of the permanent magnets of the central rotor relative to the permanent magnets of the outer rotors is preferably such that when the north south axis of the permanent magnets of the outer rotors are aligned with the north south axis of an aligned pair of energized electromagnets in the stator, the north south axis of the permanent magnet in the central rotor is aligned with the edge of the cores of said electromagnets. Most preferably, the core of the electromagnets at their cross-sectioned mid-section is a rectangle twice as deep as it is wide while the enlarged end of the cores is a square as shown in detail in FIG. 10.

It should be understood that the motor of the instant invention can be operated in unipolar or bipolar manner. It should be understood that the motor of the instant invention can be used as an electrical generator when the shaft thereof is driven. The motor of the instant invention can even be operated as both a motor and a generator at the same time by positioning a pick-up coil(s) near the rotor or by using a portion of the electromagnets as a pick-up coil(s). It should be understood that although FIG. 1 shows five electromagnets mounted in each stator, any number of electromagnets (that fit in relation to the permanent magnets) can be used in a stator the instant invention. Preferably, an odd number (such as 3, 5, 7 or 9) of electromagnets are used in each stator of the instant invention.

Referring now to FIG. 4, therein is shown a schematic view of the interaction of the permanent magnets 5 and electromagnets 12 of the embodiment shown in FIG. 1 as one set of the permanent magnets 5 rotate toward one set of the energized electromagnets 12 in the direction shown by the arrows in response to the attraction between the permanent magnets 5 and the energized electromagnets 12.

Referring now to FIG. 5, therein is shown a schematic view of the interaction of the permanent magnets 5 and electromagnets 12 of the embodiment shown in FIG. 4 as the permanent magnets 5 rotate further toward the energized electromagnets 12 in the direction shown by the arrows in response to the attraction between the permanent magnets 5 and the energized electromagnets 12.

Referring now to FIG. 6, therein is shown a schematic view of the interaction of the permanent magnets 5 and electromagnets 12 of the embodiment shown in FIG. 5 as the permanent magnets 5 rotate away from the reverse energized electromagnets 12 in the direction shown by the arrows in response to the repulsion between the permanent magnets 5 and the reverse energized electromagnets 12.

Referring now to FIG. 7, therein is shown a schematic view of the interaction of the permanent magnets 5 and electromagnets 12 of the embodiment shown in FIG. 6 as the permanent magnets 5 rotate away from the non-energized electromagnets 12 in the direction shown by the arrows.

The embodiment depicted in FIGS. 4-7 is an example of the bipolar operation of the motor of FIG. 1. If the electromagnets 12 in FIGS. 4-7 were not reverse energized (and non-energized in FIGS. 6 and 7), then the motor of FIG. 1 would have been operated in a unipolar “pull only” manner. And, if the electromagnets 12 in FIGS. 4-7 were only reverse energized (and non-energized in FIGS. 4 and 5), then the motor of FIG. 1 would also have been operated in a unipolar “push only” manner. FIGS. 4-7 show only one set of the five sets of electromagnets of the motor of FIG. 1 and only one set of the opposed sets of permanent magnets. The commutator and slip ring system shown in FIGS. 2 and 3 provides the rotation position sensing and switching for all sets of the electromagnets relative to all sets of the permanent magnets of the motor.

Referring now to FIG. 8, therein is shown a side view of the shaft 100 to be used with the motor of FIG. 1. The shaft 100 has a central splined portion 103 as well as splined portions 102 positioned near the ends of the shaft 100. The shaft 100 also has threaded portions 101 positiond near the ends of the shaft 100. Referring now to FIG. 9, therein is shown a detailed side perspective view in full of one of the permanent magnets 110 to be used in the motor of FIG. 1. The permanent magnet 110 is a three inch diameter neodynimun type that has a retaining groove 111. The retaining groove 111 engages a ridge machined in the rotors and magnet caps the of the motor. Referring now to FIG. 10, therein is shown an enlarged view of one of the electromagnet cores 120 to be used with the motor of FIG. 1. The core 120 is made of 48 layers of 1/16 inch thick iron layers 121. One end of the core 120 has a square shape three inches on a side. The other end of the core 120 has a rectangle shape three inches by one and one half inches. The edges of the core 120 are rounded with a radius of about 1/32 inch. The core 120 is wound with 12 gauge copper magnet wire potted in thermoset resin.

The electromagnet(s) of the instant invention can be cooled to increase the maximum sustained power of the motor of the instant invention. For example, a motor of the instant invention used to propel a vehicle such as an automobile can be cooled by the air conditioning system of the automobile. Preferably such cooling is sufficient to cause the electromagnet(s) to become a superconducting electromagnet(s).

It should be understood that the motor of the instant invention can be modified to run on alternating current by connecting the electromagnet(s) to alternating current and eliminating the shaft rotation position sensor and an electric switch. Such modified motor is hereby included within the broad scope of the instant invention. Such modified motor has a speed dependent on the frequency of the alternating current. Of course, such modified motor preferably has additional permanent magnets mounted in the rotors in the same manner as the original permanent magnets since all of the electromagnets are being energized at the same time by the alternating current. Furthermore, it should be understood that it is equivalent in the instant invention to mount the permanent magnets in a stator(s) while the electromagnets are mounted in the rotor(s). However, such an arrangement requires slip rings and brushes to energize the electromagnets and thus such an arrangement is not preferred.

Conclusion

While the instant invention has been described above according to its preferred embodiments, it can be modified within the spirit and scope of this disclosure. This application is therefore intended to cover any variations, uses, or adaptations of the instant invention using the general principles disclosed herein. Further, the instant application is intended to cover such departures from the present disclosure as come within the known or customary practice in the art to which this invention pertains and which fall within the limits of the following claims.

Pavel N. YABLOTCHKOV

Over-Unity Electrostatic Amplifier

***New Energy Technology*, Vol. 1, p. 68**

Power Output can be More than Power Input

by

Alexander V. Frolov

Pavel N. Yablotchkov was born in 1847 near Saratov, Russia. He graduated as a Military Engineer in 1866 and spent several years in the Russian Army. In 1872 he came to Moscow and started his activities in the electrotechnical field. From 1875 he worked in Paris with well-known Louis Breget and his first patent in France # 110479 (29 November 1875) was about an electromagnetic transformer. Then he patented and developed a lighting system (the famous

Yablotchkov's electrical candle). In 1887 he patented a new electromagnetic transformer for industrial applications, France # 115793 (30 November 1876).

Pavel N. Yablotchkov

The most interesting patent claim for over-unity by Pavel Yablotchkov is known as France patent # 120684 (11 October 1877), The System of Distribution and Amplification of Electrical Currents by Means of Atmospheric Electricity. The patent describes special capacitors connected in series with the load, to increase output current by means of ionization. Experiments were produced together with well-known physicists (such as Dr Maskar, Dr Varren-Delaru and others) and they confirmed 200% efficiency of the circuit. Let's try to explain the method. Figure 1 is a schematic drawing from Yablotchkov's patent. The Leyden jar is not a symmetrical capacitor, i.e., it is different in principle from a two-plate flat capacitor. The inner electrode of the jar should be connected to a high voltage source and in this case the changes of [… missing text in original…].

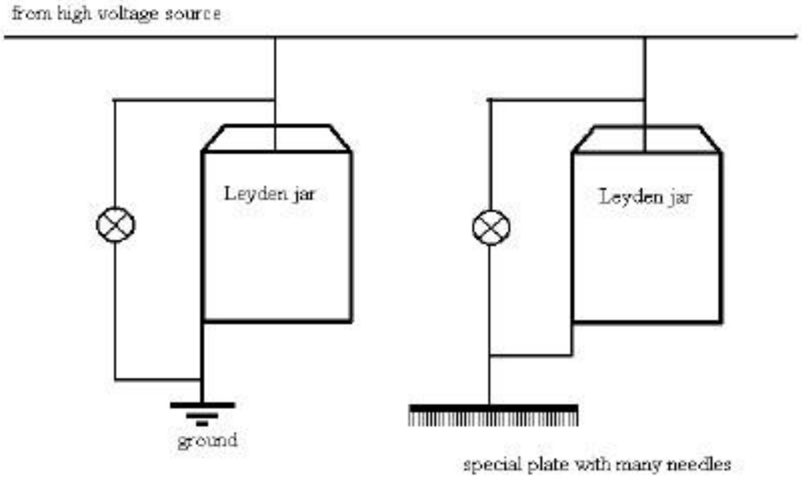
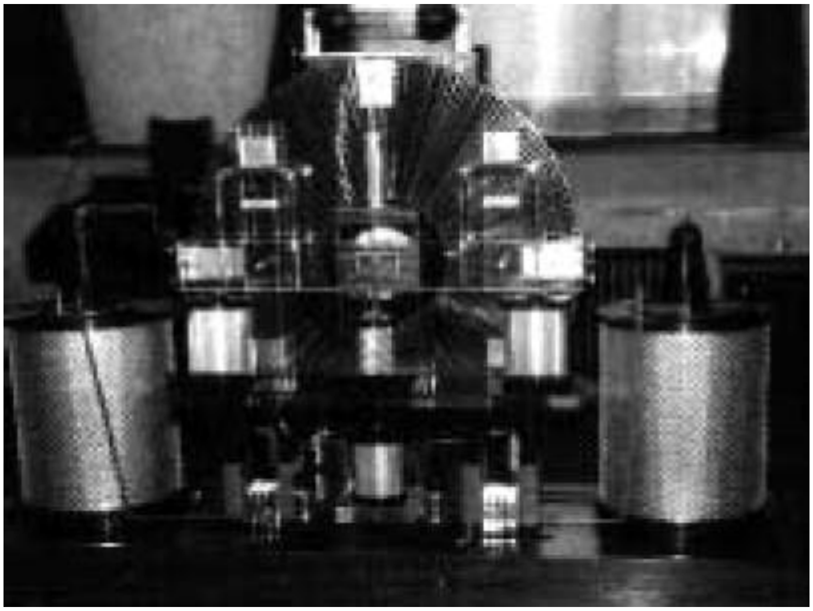


Fig.1

In the opposite case it does not work and if you connect a high voltage source to the external cathode no potential changes will be detected on the inner electrode. Connection to ground or to a special plate (that is covered by many needles to increase air ionization) is necessary to collect the maximum electrons on the plate surface or to return the maximum electrons from the plate surface when changes of potential in the external electrode are produced by means of electrical induction in the Leyden jar.

As a conclusion I should note that one more supposition about the secrets of the well-known Swiss M-L converter (Methernitha). The main elements of the design are Leyden jar capacitors, which have the external surface made of perforated metal.

The other known fact is that great ionization of air is observed when the converter is in operation. So, the electrostatics machine can produce pulses of very high voltage (potential difference) but it can't be used as a source of powerful current. We should use some method to increase the current in the circuit and Yablotchkov's technology is quite a good idea for this. A large surface of external electrode of the Leyden jar can solve the problem. Maximum strong ionization allows us to get output current several times stronger than the weak current from the electrostatic machine.



Muammer YILDIZ

Electrical Generator

Update -- 5-2010 -- A new design ... patented...

This device claims to produce over-unity --- apparently by means of Homopolar Generators.

http://www.muammer-yildiz.com
http://muammeryldz54.spaces.live.com/PersonalSpace.aspx?_c02_owner=1

WO 204/091083

A System which Generates Electrical Power via an Accumulator that Provides the Initial Motion for the System

Muammer YILDIZ

Abstract

This is a portable system that generates electrical power via an accumulator that provides the initial motion for the system. Two batteries are used in this system and the system is kept working via the initial motion provided by these batteries. There is no need for another transformer. This device works using its own mechanism and there is no need for additional devices. In this way, a continuous electrical power generation is possible. This device can work without connecting it to a network so it is possible to use it at places where electricity does not exist. Moreover, when connected to the entry of a building, the need for a network is avoided. This system generates electrical power independent of a network.

Description

A system which generates electrical power via an accumulator that provides the initial motion for the system.

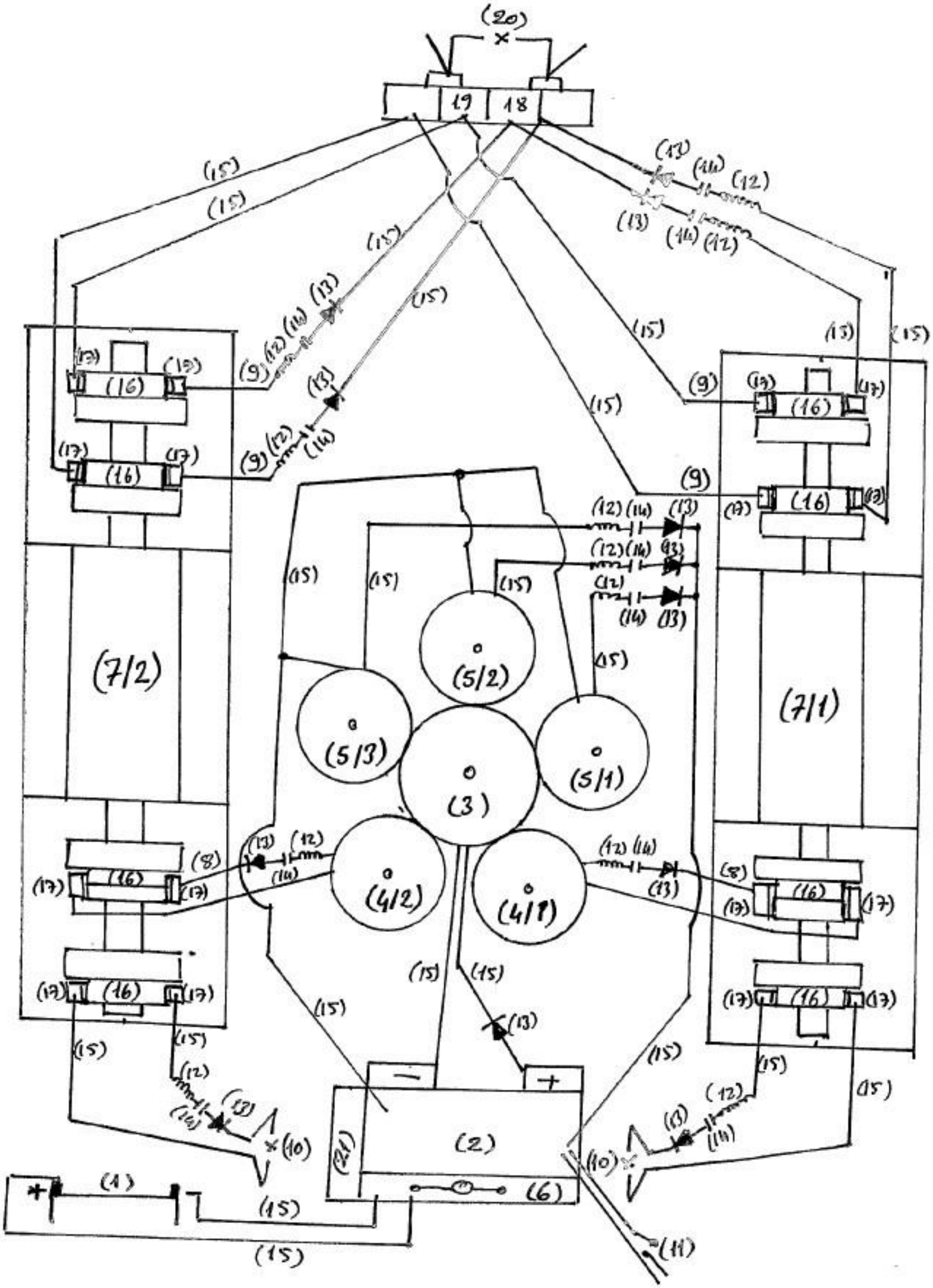
This is a portable system that generates electrical power via an accumulator that provides the initial motion for the system.

Already existing systems can generate electrical power of whose duration depends on the lifetime of the battery. In these systems, the battery has to be reloaded in order to restart the system. 12V electrical power provided by the batteries used in cars are increased to 220 V via transformers.

Two accumulators are used in out invention. The system works on a continuous basis after initial startup via these accumulators. There is no need for another transformer. Our system, which generates electrical power, does not need any other devices and it keeps on generating energy via its own mechanism. Also, the system works without connecting it to a network. Thus, it can be used at any place where no electricity exists. Nevertheless, when this system is connected to the entry of the buildings, there is no need for an additional network. The system can produce electrical power independent of a network.

Below are the explanations of the figures that provide a better understanding about this invention.

Figure 1 --- Schematic view of the system.



R1

Numbers on the schema:
1. --- Accumulator
2. --- Regulator
3. --- Big gear
3/1 --- Starter dynamo
4. --- Small gear
4/1-2. --- Feedback dynamo
5. --- Small gear
5/1-2-3. --- Feedback dynamo
6. ---Contactor
7/1-2. --- Commitatris [Commutator]
8. --- 19 DC input
9. --- 24 DC input
10. --- 580 DC output
11. --- Switch
12. --- Shunt
13. --- Rectifier
14. --- Capacitor
15. --- 2.5 mm cable
16. --- Collctor
17. --- Charcoal [Carbon]
18. --- Fixing clamps (+)
19. --- Fixing clamps (-)
20. --- Lamp
21. --- Conjector
22. --- Starter dynamo
23. --- Feedback dynamo
24. --- AC dynamo
25. --- Magnetic switch
26. --- Pulley
27. --- Pulley
28. --- V pulley
29. --- 380 V current output
30. --- 220 V current output

This invention is a system that starts working via the motion of alternator. There exist two accumulators (1), and the first motion provided by the accumulator is carried to the regulator. Contractor (6) keeps the starter dynamo working by disconnecting the accumulator (1) once the regulator (2) is put in. The voltage coming from the accumulator (1) passes through the regulator and the start dynamo (3/1) starts working and thus the feedback alternators via the gears (4/1-2 – 5/1-23-3). Feedback dynamo starts sending pure DC current to regulator via shunt (12), capacitor (14) and diode (13). It connects all the current that reaches to the regulator in 4 seconds and sends to the contactor (6). Accumulator (1) is put out by this current that reaches to the regulator. This current is transformed to the started dynamo (3/1). There becomes a transformation within the system. In case of electricity shortage, it keeps on working by using the current generated by the commitatris (7/1).

Via the starter dynamo (3/1), DC is generated in the alternators which are connected to the gears and this current is transformed to the commitatris (7/1-2) and DC voltage is generated at commitatris (7/1-2).

Second System

3 x 24 DC voltage is transformed to the second starter dynamo (22). Once the start dynamo works (22), a feedback dynamo (23) having a pulley system and a feedback dynamo (24) generating alternative current starts working. The feedback dynamo (23) starts feeding back; the feedback dynamo (24) which generates AC is independently generating 6 KV, 18 Amp, 50 Hz current. Moreover, first system produces 24 DC and 580 DC current on its own.

The bigger the gears are, the more current is generated.

This system, which is subject to our invention, can be used at any place. You can use it at places where there exists no electricity, or at places such as villages, cities, buildings, greenhouses where there is not network. Moreover, network is no more a must. Instead of a network, you can use our system. There is no need for gasoline when this system is used in vehicles.

Technische Universiteit Eindhoven [Eindhoven Technical University]
Department of Electrical Engineering, Electromechanics and Power
EUT_JD2005_2.doc (7-28-2005)

Experiments on an Apparatus Intended to Generate Electricity without Physical Connections to Other Power Sources

by

J.J. Duarte

This technical note aims at describing a test I personally conducted in Izmir, Turkey on July 17, 2005. The purpose of the experiment was to check the energy balance with respect to input and output of an apparatus, which was the embodiment of the invention described in international patent WO 2004/091083 A1.

The apparatus was confined inside a metallic box, and I was allowed to inspect everything outside this box. However, in order to protect the core ideas of the invention, I was not supposed to check all the details of the internal parts. According to the inventor the apparatus is predominantly a mechanical system, without any kind of energy storage inside the box like batteries, accumulators, flywheels, combustion motors, chemical or radioactive reactions. I believe the intentions of the inventor were in good faith.

The experimental setup was quite simple, as shown schematically in Figure 1. It consisted of placing the box with unknown contents, from which DC voltages and currents were expected to be generated, on a table in the middle of a room. From the box, a cable with two terminal contacts was available for connecting electrical loads. I placed measurement instruments between the box output terminals and the load. The load consisted of an ordinary AC-DC inverter, this inverter being connected to an incandescent lamp. The working principle of the inverter and the lamp type were not relevant for analyzing the results, because the output power delivered by the box was measured immediately after the output terminals. Photographs of the setup are included in Appendix A.

Figure 1: Experimental Setup

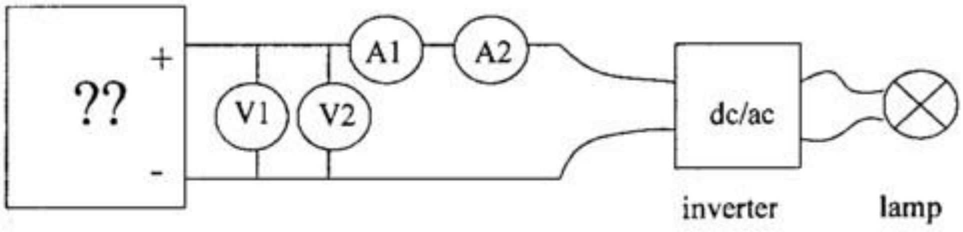


Figure 1: Experimental set-up

After a short start procedure, the metallic box together with the lead were fully isolated from the environment (in what concerns other physical contacts like cable connections to the public mains) during the whole duration of the measurements. This situation is in agreement with the description given in the international patent [WO 2004/091-83] mentioned above. Since the energy input entering the apparatus was quite modest, as it will become clear further in this note, the main issue was then to measure the delivered energy output.

I had prepared the power measurements with care, by using reliable instruments I personally brought with me from my own university laboratory. In order to measure the DC voltage directly out of the positive and the negative electrical terminals I used two different voltmeters in parallel, one analog (constructed with permanent magnets and wires) and another digital (that employs electronic circuits to acquire and to display the measured values). These instruments are based on completely different working principles. Also for measuring the DC current coming out the positive terminal and entering back into the negative terminal, I placed two ammeters in series, again one analog and the other digital. If electromagnetic waves would interfere with the measurements, they would disturb one or the other instrument, but not all four pieces at the same time in the same way.

Before starting the experiment, no kind of audible noise was being produced by the apparatus. Also, I measured the voltage differences between the internal and external connection points, and no potential differences between the internal and external connection points, and no potentials were found. So far as I could observe, the apparatus was completely at rest.

The start procedure consisted of connecting a small 12V DC lead-acid accumulator to two contact points inside the box, during a short time interval (see Figure B1 in Appendix B). I observed this time interval with the help of my own watch, and it was more than 5 seconds, but less than 10 seconds. In later calculations it is reasonable to consider this start time interval as being equal to 8 seconds. After that, no other energy input was connected to the box by means of cables.

Immediately after the start procedure I could hear noise as produced by rotating parts inside the box. The inventor communicated that a stabilizing time interval of about 10 minutes should be respected before switching on the load (inverter plus lamp). During this interval it was possible to observe in both voltmeters that DC voltage was being generated on the terminals, which decayed slowly from 12.9 V DC to 12.5 V DC. The displayed values in the analog and digital instruments were in good match. After 10 minutes I switched on the DC inverter.

In the following hours I observed and registered by hand the values of voltages and currents displayed by the instruments. The displayed values were quite stable; therefore I decided to register them first after 15 minutes, later at each half hour.

From time to time I sensed the internal parts in the box with my hands, looking for temperature gradients, but I could not perceive any noticeable temperature rise with respect to the ambient. After 5 hours I took the decision to stop the measurements.

Results are given in Table 1. The displayed values of both voltmeters and both ammeters were in good agreement (in view of the precision of the instruments), as it can be seen in Table 1. For this reason, I dare to conclude that the results I’ve registered are reliable, to the best of my knowledge.

From Table 1 it is possible to see that the generated output voltage and current remained fairly constant during the 5 hours test.

Table 1

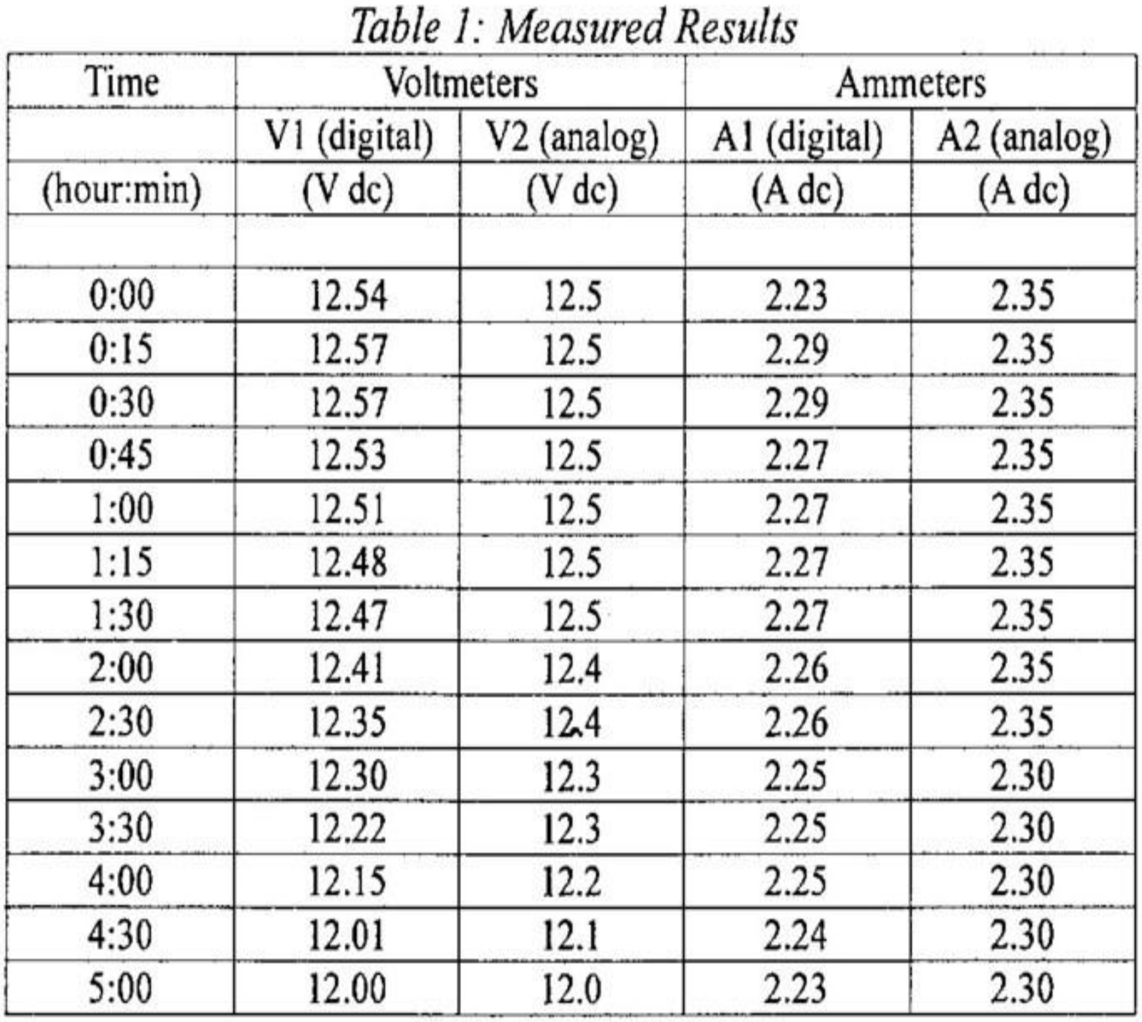


Table 1: Measured Results

Time	Voltmeters		Ammeters	
	V1 (digital)	V2 (analog)	A1 (digital)	A2 (analog)
(hour:min)	(V dc)	(V dc)	(A dc)	(A dc)
0:00	12.54	12.5	2.23	2.35
0:15	12.57	12.5	2.29	2.35
0:30	12.57	12.5	2.29	2.35
0:45	12.53	12.5	2.27	2.35
1:00	12.51	12.5	2.27	2.35
1:15	12.48	12.5	2.27	2.35
1:30	12.47	12.5	2.27	2.35
2:00	12.41	12.4	2.26	2.35
2:30	12.35	12.4	2.26	2.35
3:00	12.30	12.3	2.25	2.30
3:30	12.22	12.3	2.25	2.30
4:00	12.15	12.2	2.25	2.30
4:30	12.01	12.1	2.24	2.30
5:00	12.00	12.0	2.23	2.30

Remarks:

So far the experiment has been described. The following comments are my own subjective interpretation.

Power calculations based on the registered values of voltages and currents in Table 1 lead to the conclusion that much more energy is delivered by the box, which was completely isolated from the environment, than the possible initial energy input used to start the process. For instance, the energy output after 5 hours is approximately given by

(12.25 V) x (2.3 A) x (5 x 60 x 60 s) = 507 kJ

Therefore, in order to input this same amount of energy into the box during the start procedure, the current that would have been drawn from the small 12 V lead-acid accumulator for the duration of 8 seconds is found to be

507 kJ / (12 V) x (8 s) = 5280 A

which is physically not possible to realize considering the volume of the accumulator and the simple connector contacts shown in Appendix B!

Considering the inventor’s assurance that the apparatus is mainly a mechanical device, and that no kind of energy storage was implemented inside the box, it isn’t clear where the measured excess of energy out of the box is coming from --- whether out of electromagnetic fields or as the result of some anomaly associated with rotating bodies in terms of inertia. This is a most interesting phenomenon, which deserves further attention.

After analyzing the results in detail, together with the drawing and explanations provided by the inventor (see Appendix C), it was possible to recognize from the schematics certain mechanical structures, the so-called homopolar machines, turning at high speed of rotation.

This is a really exciting idea because a link could be established between the apparatus under observation and a famous experiment performed in 1831 by Michael Faraday, the inventor of the electrical machines. In the academic literature this old experiment is known as the Paradox of Faraday’s Disk.

Indeed, many other scientists hypothesize about the possibility of constructing homopolar machines with efficiency above 100% (see, for instance, the paper of Brice DePalma, "On the Possibility of Extraction of Electrical Energy Directly from Space" in the academic journal *Speculations in Science and Technology*, Sept. 1990, Vol. 13, No. 4…) [see also: http://www.rexresearch.com/depalma/depalma.htm]. However, up to the present time nobody has demonstrated in a convincing way a practical application of the principle. Perhaps the inventor has discovered the missing link in these machine; who knows?…

Of course, the straightforward way to check this possibility would be to inspect the contents inside the box. However, the inventor is only willing to allow that after a solid commitment with a research institution or an industrial partner.

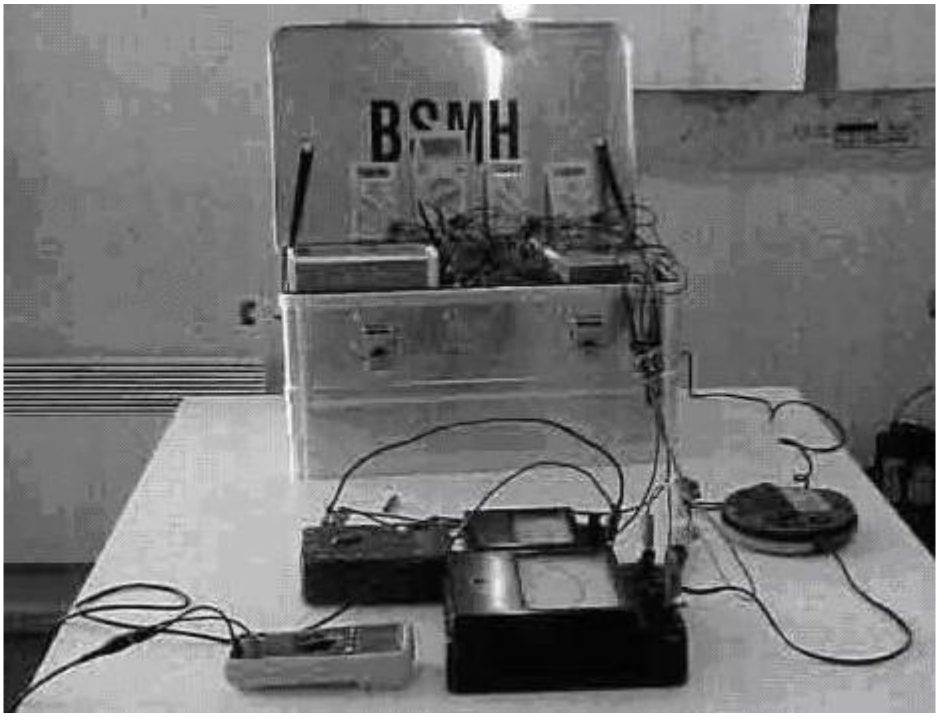
So, the next step would be to exclude the possibility of some kind of conventional electrochemical energy processing inside the apparatus. For this purpose the realization of another experiment, similar to the one described above, would be advisable, but not without long run-time of measurements. The results should convince that, indeed, it is not possible to get the same energy output with the best commercially available battery. Therefore, a new experiment may take many days (about 4 or 5) to be executed.

Eindhoven
28 July 2005

J.J. Duarte

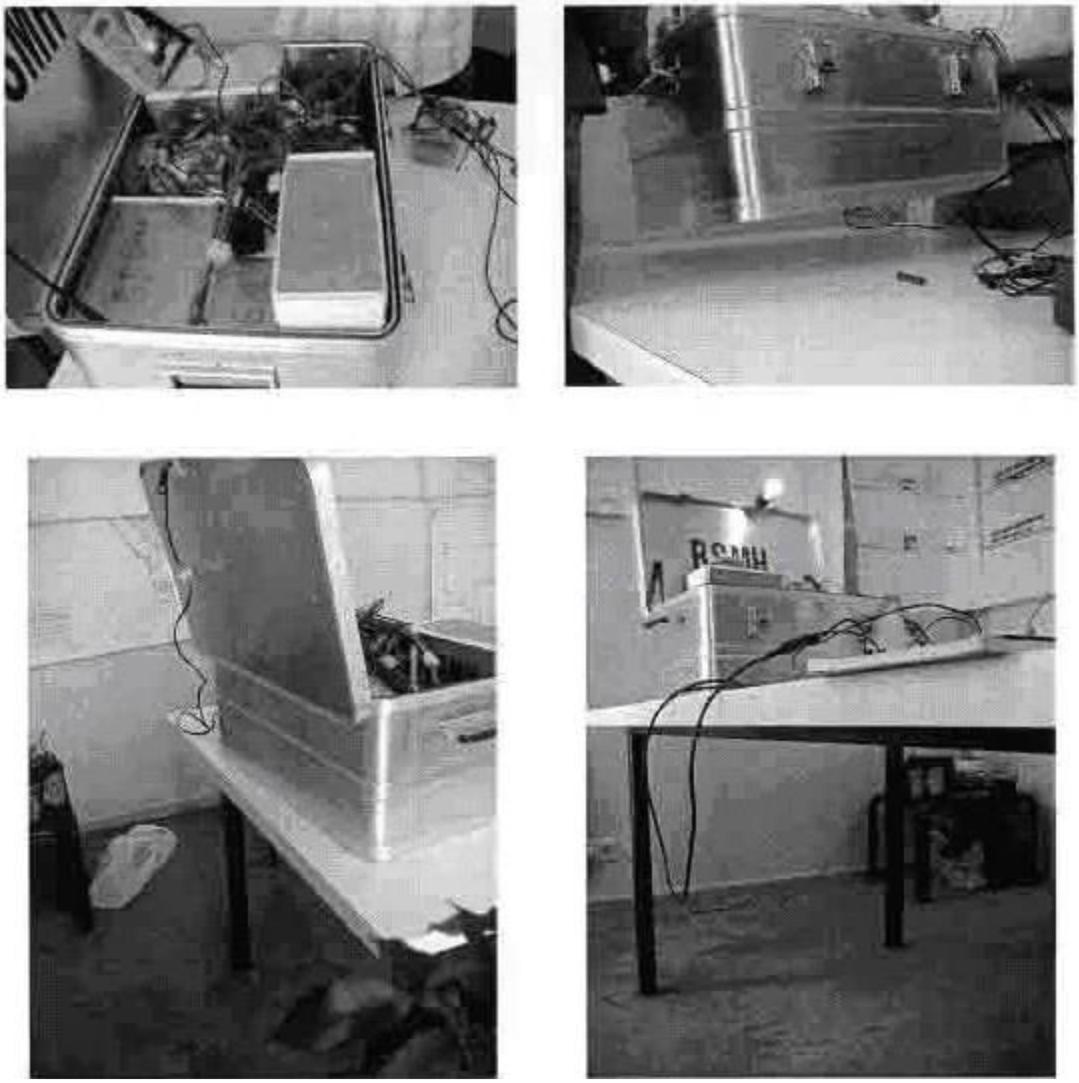
Appendix 1
Experimental Setup

Figure A1 ---



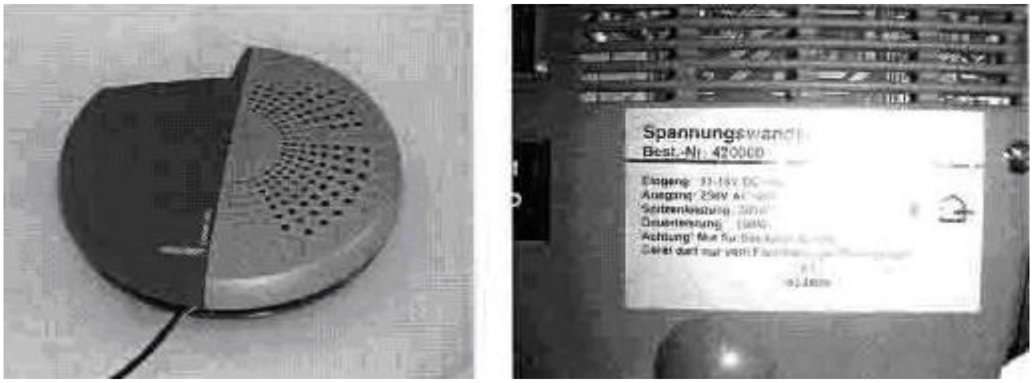
Global view of the experimental setup, illustrating the apparatus under test inside a metallic box. In the front plane are the measurement instruments. The load is a combination of an inverter (withcircular shape), connected to the box output terminals, and an incandescent lamp. Four voltmeters (multimeters) placed on the box cover, were connected by the inventor for monitoring purposes.

Figure A2 ---



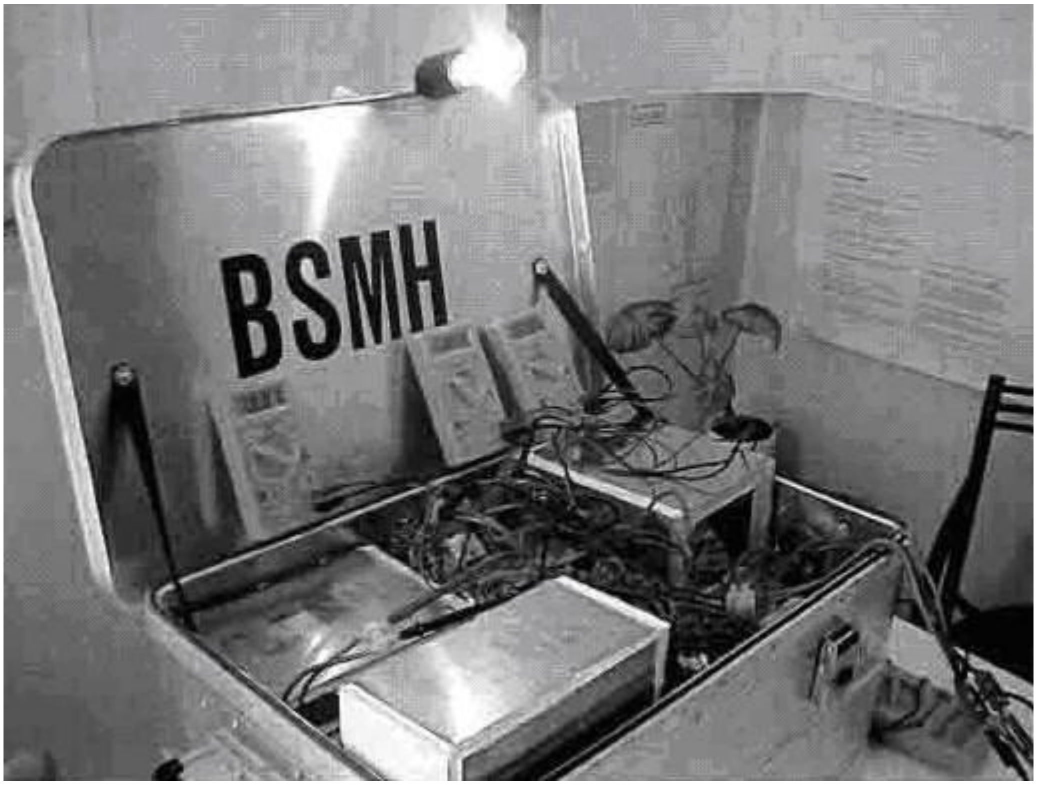
Contents inside the metallic box and different views of the setup.

Figure A3 ---



Details of the DC-AC inverter used as a load.

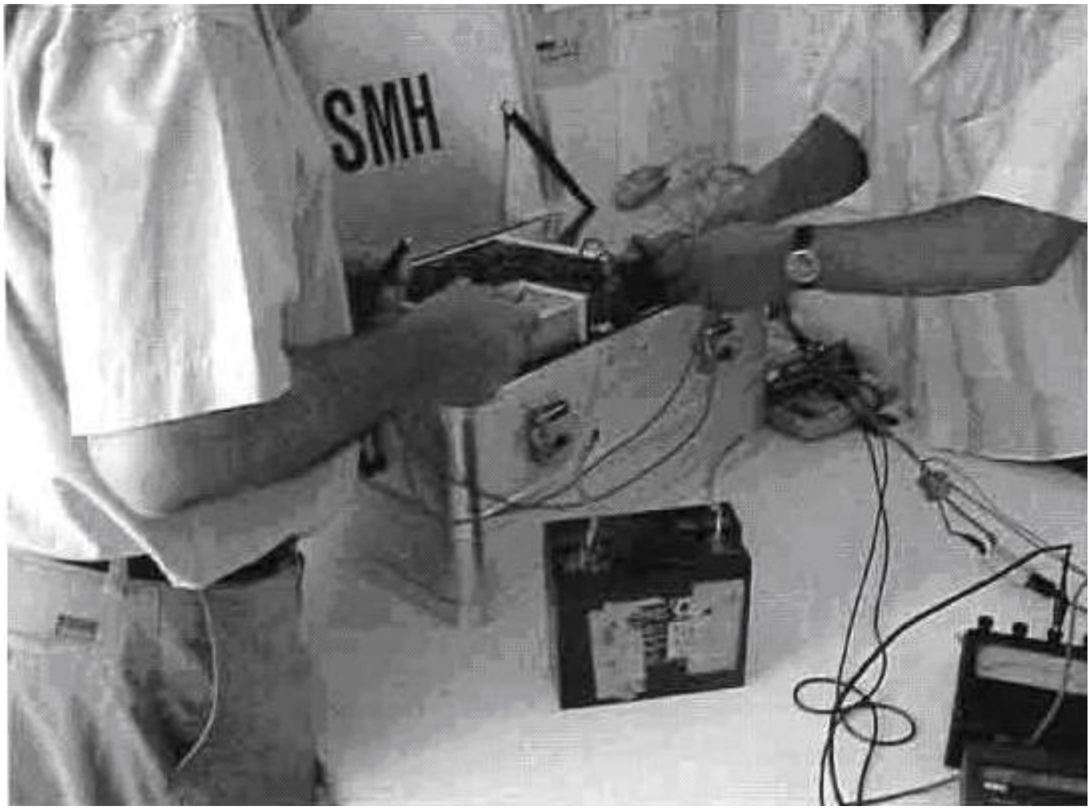
Figure A4 ---



Another view of the embodiment of the invention. The metallic box has the external dimensions: 55 cm x 38 cm x 27 cm. The components inside the box, excluding wire and isolation materials, weigh 20 kg. (Information provided by the inventor).

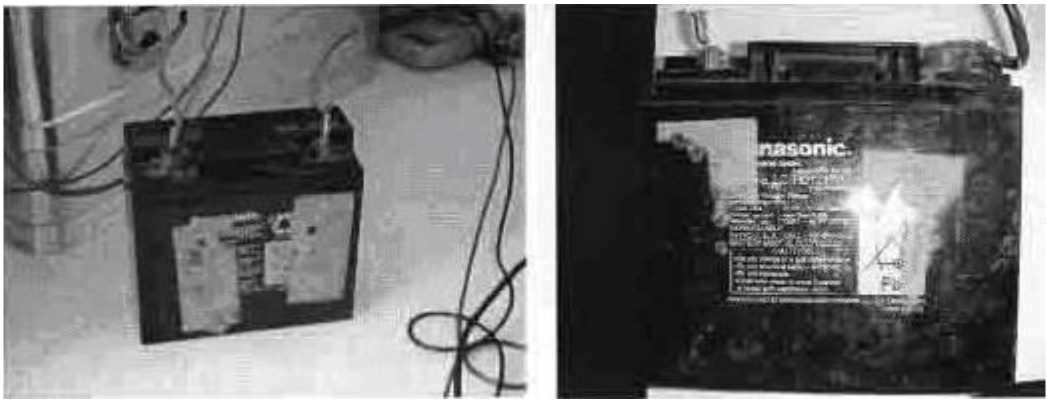
Appendix B
Startup

Figure B1 ---



Preparing the startup process.

Figure B2 ---



Details of the accumulator used for startup.

---

http://www.ocean-star.org

İzmirli emekli emniyet amiri Muammer Y

Mucit

Çocuklarının adını verdi

Hayret uyandıran buluşlara bir yenisi de İzmir'de eklendi. Emekli Emniyet Amiri Muammer Yıldız, 12'şer voltluk iki aküden 8 saniye destek aldıktan sonra yakıt gerektirmeden kendi kendine elektrik üreten cihaz yaptı. Yıldız, sisteme, çocuklarının isimlerinin baş harflerinden esinlenerek (Büşra, Serap, Muammer, Hiranur) BSMH adını verdi.

Yurtdışından teklif aldı

Yıldız, cihazın ihtiyaca göre 1 volttan 1 milyon volta kadar elektrik üretilebileceğini söyleyip şöyle dedi: İtalya, Almanya ve Hollanda'dan seri üretim teklifleri aldım. Ankara'ya gidip Başbakan Recep Tayyip Erdoğan'la görüştüm. Projenin değerlendirilmesi gerektiğini söyledi. Hedefimiz, Türkiye'de elektrik için harcanan maliyeti azaltmak.

Links:

http://www.youtube.com/watch?v=ybn--DsyzBk --- Video

http://www.ocean-star.org/german/presse2.html
http://www.ocean- star.org/center.html
www.haber7.com/haber.php?haber_id=71457
http://www.milligazete.com.tr/index.php?action=show&type=news&id=6643
http://www.haberarsivi.com/haber.asp?id=6863
http://www.inndir.com/haberler.php?id=36997
http://samsun.meb.gov.tr/haberler/yenilenen_mufredat_toplantisi_haziran2005/yenilenen_mufredat_toplantisi_haziran2005.htm?DIL=1&BELGEANAH=5458&DOSYAISIM=kpy.pdf
http://www.zaman.com.tr/webapp-tr/haber.do?haberno=130993
http://www.forumca.net/showthread.php?t=63173

Update 4-30-2010 --

A New Design ...

http://www.youtube.com/watch?v=mI3227d5Css

http://www.youtube.com/watch?v=OEMJYIQQZTo&feature=related

http://www.youtube.com/watch?v=epLOEaoPMFU&feature=related

http://www.youtube.com/watch?v=-DkDXvPpa6Q&feature=related

http://www.youtube.com/watch?v=EvWxe_RRo8k&feature=related

http://www.youtube.com/watch?v=1oh7ymZPESU&feature=related

http://www.youtube.com/watch?v=Qpvkc3TxLrQ&feature=related

http://www.youtube.com/watch?v=zE9sV6_D_NY&feature=related

WO2009019001
DEVICE HAVING AN ARRANGEMENT OF MAGNETS

2009-02-12
Inventor(s): YILDIZ MUAMMER [TR] + (YILDIZ, MUAMMER)

Also published as: DE102007037186 // EP2153515
Cited documents: EP0088909 // DE202005020288U // EP0501427 // DE2847618 // EP1489734

Abstract -- The invention relates to a device having an arrangement of magnets for generating an alternating magnetic field that interacts with a stationary magnetic field. The device comprises a rotor (1) and a stator (2) disposed coaxially to a rotatably mounted shaft (5). The rotor (1) comprises one or more first magnet sequences and the stator (2) one or more second magnet sequences. The first and second magnet sequences each comprise two or more dipole magnets, the arrangement and orientation of which may vary.

Apparatus with an arrangement of magnets

The invention relates to an apparatus to the generation of a magnetic alternating field, which interacts with a stationary magnetic field.

The interaction of a stationary magnetic field and a magnetic alternating field becomes already utilized since longer, for example within the range of brushless DC motor and magnetic levitation transport systems.

The invention is the basis the object, an improved apparatus to the generation of a magnetic alternating field, which interacts with a stationary magnetic field to create.

This object becomes by apparatus with rotor and stator dissolved, which coaxial to rotatable stored shaft arranged are, whereby rotor one or more first magnet sequences and stator one or more second magnet sequences exhibits, whereby one or more first magnet sequences in each case two or more on outer surface coaxial to shaft oriented first circular cylinder arranged dipole magnets cover, whose dipole axles with a tangent include to the scope of the outer surface by a point, at which the dipole axles break through in each case the outer surface, in each case an inclination angle, which lies in a range of 14 degree to 90 degree, and which one or more second magnet sequences in each case two or more on one Outer surface coaxial to shaft oriented second circular cylinder arranged dipole magnets cover, whose dipole axles with a tangent include to the scope of the outer surface by a point, at which the dipole axles break through in each case the outer surface, in each case an inclination angle, which lies in a range of 14 degree to 90 degree, whereby exhibits the one or more in each case first magnet sequences and the one or more second magnet sequences regarding a vertical plane a pitch angle arranged to a shaft axis of the shaft, which lies in a range of 10 degree to 80 degree or of 280 degree to 350 degree, and whereby includes the one or more first magnet sequences and the one or more second magnet sequences an angle of attack, that in a range of 0 degree to 90 degree lies.

The formulations “their dipole axles with a tangent to the scope of the outer surface by a point, specified above, at which the dipole axles break through the outer surface, in each case an inclination angle in each case include, in a range of 14 the degree to 90 degree lie” are to be understood in such a way that each of the dipole magnets of the rotor and the stator can exhibit an individual inclination angle. The single limitation of the respective individual inclination angle is that it lies in a range of 14 degree to 90 degree. This covers the case that two exhibit or more dipole magnets the same inclination angle. So e.g. is it. also possible that all dipole magnets of the rotor and/or the stator exhibit the same inclination angle.

The formulation specified above “whereby the one or the more first magnet sequences and the one or more second magnet sequences regarding a vertical plane in each case a pitch angle arranged to a shaft axis of the shaft exhibit to understand in a range of 10 the degree to 80 degree or of 280 degree to 350 degree lie” is in such a way that each magnet sequence of the rotor and the stator can exhibit an individual pitch angle. The single limitation of the respective individual pitch angle is that it lies in a range of 10 degree to 80 degree or of 280 degree to 350 degree. This covers the case that two or more magnet sequences exhibit the same pitch angle. So e.g. is it. also possible that all magnet sequences of the rotor and/or the stator exhibit the same pitch angle.

In the case that two magnet sequences on the rotor and/or the stator exhibit different pitch angles, it is also these magnet sequences the associated angle of attack different. Beyond that specified the above solve the problem by an apparatus with a coaxial inner stator, a coaxial rotor arranged to the shaft and a coaxial outside stator arranged to the shaft, arranged to a rotatable stored shaft, whereby the rotor is connected regarding the inner stator at least partial radial other outer arranged and solid with the shaft and the outside stator is at least partial radial other outer arranged regarding the rotor, whereby the inner stator two or more exhibits arranged dipole magnets, which are uniform distributed over the circular cylinder extent and are regarding a shaft axis of the shaft axial against each other so offset on an outer surface of a circular cylinder that itself on the outer surface of the circular cylinder a treppenförmige arrangement that Dipole magnets results in and adjacent dipole magnets regarding the shaft axis axial partly overlap, whereby the rotor two or more exhibits longitudinal series with in each case four or more uniform dipole magnets distributed on the circular cylinder extent on an outer surface of a circular cylinder, whereby the dipole magnets of series are appropriate for against each other alternate so offset in a vertical plane longitudinal to the shaft axis and are the dipole magnets of adjacent rows that they form axial to the shaft axis a zigzag pattern uniform over the circular cylinder extent, and whereby the outside stator two or more exhibits arranged dipole magnets on an outer surface of a circular cylinder, which is uniform on the outer surface distributed.

By the particular arrangement of the dipole magnets of the rotor and the stator and/or. the stators cause formed magnetic fields that the rotor becomes free floating held. The apparatuses according to invention works in such a way as a magnetic bearing. Surprisingly shown has itself that by the particular arrangement of the dipole magnets of the rotor and the stator and/or. the stators with rotation of the rotor a magnetic alternating field generated becomes, a to a large extent lossless rotation of the rotor relative the stator and/or. the stators allowed. This can become for a multiplicity of technical applications utilized, for example for a particularly friction-poor storage itself of a preferably rapid rotary shaft. In the ensuing description mathematical, in particular geometric terms become, e.g. parallel, vertical, plane, cylinder, angle, etc. used, which can be registered in technical designs, but in the practice due to the production-determined tolerances never perfect satisfied to become to be able. For the person skilled in the art it is clearer therefore that this description is to be regarded only as description of ideal. The description includes however tacitly also similar devices with general conventional tolerances also.

The shaft runs in an axis, the so-called. Shaft axis, and is more rotatable around this axis. The shaft preferably is as straight circular cylinders formed, whereby those forms axis of rotation of the circular cylinder the shaft axis.

It is possible that within the first and/or second magnet sequences adjacent dipole magnets exhibit the same polarity. It is also possible that within the first and/or second magnet sequences adjacent dipole magnets exhibit a different polarity.

In a prefered embodiment the polarity of the two is or more dipole magnets within or several magnet sequences a same. Regarding the shaft axis that means that the north poles of all dipole magnets point within or several magnet sequences either to the shaft axis or of it remote are. Meant or several magnet sequences are magnet sequences in or more of the first magnet sequences and/or magnet sequences in or more of the second magnet sequences. It is also possible that the polarity of all dipole magnets of the rotor and/or. the stator same is, is called that the north poles of all dipole magnets of the rotor and/or. the stator either to the shaft axis show or of it remote are. Bottom polarity of a dipole magnet the orientation magnetic Nordund of south pole of the dipole magnet becomes understood.

In another prefered embodiment is the polarity of the two or more Dipole magnets of a magnet sequence alternate. It is possible that within a magnet sequence adjacent dipole magnets exhibit a different polarity. In this case successive dipole magnets of a magnet sequence show for example the sequence… SNSN… (N = north pole; S = south pole). It is also possible that the change of the polarity is irregular, so that itself for example the sequence… NNSNNS… results in.

Preferably the dipole axles of the dipole magnets parallel plane arranged vertical to that to the shaft axis run.

Preferably the distance of adjacent dipole magnets of the two is or more dipole magnets within or several magnet sequences a constant. Meant or several magnet sequences are magnet sequences in or more of the first magnet sequences and/or magnet sequences in or more of the second magnet sequences.

It is possible that the distance of adjacent dipole magnets is within the one or more first magnet sequences of the rotor and/or the stator constant. In this case it is possible that the distance of adjacent dipole magnets of the two differs or more dipole magnets within the one or more first magnet sequences dipole magnets of the two adjacent of the distance or more dipole magnets within the one or more second magnet sequences. It is also possible that the distance of adjacent dipole magnets of the two agrees or more dipole magnets within the one or more first magnet sequences dipole magnets of the two adjacent with the distance or more dipole magnets within the one or more second magnet sequences.

It is also possible that the inclination angle of the dipole axles within the one or more first magnet sequences and/or the one or more is second magnet sequences constant. Preferably these constant inclination angles in a range of 14 degree to 90 degree lies.The pitch angle of a magnet sequence indicates the intersection angle between a tangent, the one curve touched, and a vertical plane longitudinal formed by the two or more dipole magnets within the magnet sequence to the shaft axis. Generally case can change the pitch angle of a magnet sequence in the course of the magnet sequence. In a prefered embodiment the pitch angle of a magnet sequence is constant, comparable with the slope of a thread. In the case of a constant pitch angle the two lie or more dipole magnets of the magnet sequence with a development on a straight one.

It is prefered, if exhibits the one or more first magnet sequences the same pitch angle, first pitch angle mentioned. Further it is prefered, if exhibits the one or more second magnet sequences the same pitch angle, second pitch angle mentioned.

The angle of attack between a first magnet sequence and a second magnet sequence indicates the intersection angle between a first tangent, the one curve touched, and a second tangent, the one curve touched formed formed by the two or more dipole magnets within the first magnet sequence by the two or more dipole magnets within the second magnet sequence for a development of the first and second magnet sequences. Generally case can change the angle of attack in the course of the magnet sequences.

In a prefered embodiment the angle of attack between a first magnet sequence and a second magnet sequence is constant. In this case is the respective pitch angles of the first magnet sequence and the second magnet sequence constant.

In a particularly prefered embodiment a single, constant angle of attack exists for all first and second magnet sequences. In this case the one or more exhibits first magnet sequences the same first pitch angle and the one or more second magnet sequences exhibits the same second pitch angle.

In a prefered embodiment two or more begin first magnet sequences at a first vertical plane arranged to the shaft axis and end at a second vertical plane arranged to the shaft axis. In same wise is it possible that two or more begin second magnet sequences at a first vertical plane arranged to the shaft axis and at a second vertical plane arranged to the shaft axis end. It is possible that all magnet sequences of the rotor and/or the stator at a first front surface of the rotor oriented transverse to the shaft axis and/or. the stator begin and at a second front surface of the rotor oriented transverse to the shaft axis and/or. the stator end. Preferably the one or more is first magnet sequences and/or the one or more second magnet sequences so arranged that groups of two or more magnet sequences are formed. A group of two or more magnet sequences is characterised by the fact that the distance of the magnet sequences is to each other smaller than the distance to magnet sequences, which do not belong to the group.

In a prefered embodiment an air gap between the rotor and the stator exhibits a gap width of 0.1 mm up to 50 mm. Particularly prefered is it, if the gap width exhibits a value from 1 mm to 5 mm.

In a prefered embodiment the rotor and the stator in that point vertical plane one arranged to the shaft axis circular cross section essentially exhibit. With the term “essentially circular” is stated that the cross section due to the production-determined tolerances the geometric perfect circular shape does not come satisfied, it however close.

Preferably the outer surface of the first circular cylinder the outer periphery of the rotor is umbeschrieben and/or the inner periphery of the rotor in-described. First that the outer surface of the first circular cylinder the outer periphery of the rotor it umbeschrieben is refers to the case that the rotor is at least partial radial other inside arranged regarding the stator. The latter that the outer surface of the first circular cylinder the inner periphery of the rotor is in-described, refers to the case that the rotor is at least partial radial other outer arranged regarding the stator.

Preferably the outer surface of the second circular cylinder the outer periphery of the stator is umbeschrieben or the inner periphery of the stator in-described. First that the outer surface of the second circular cylinder the outer periphery of the stator it umbeschrieben is refers to the case that the rotor is at least partial radial other outer arranged regarding the stator. The latter that the outer surface of the second circular cylinder the inner periphery of the stator is in-described, refers to the case that the rotor is at least partial radial other inside arranged regarding the stator. In a prefered embodiment are the dipole magnets of the rotor and/or. the stator so in each case on the outer surface of the first circular cylinder and/or. the second circular cylinder arranged that the outer surface of the first circular cylinder and/or. the second circular cylinder the dipole magnets of the rotor and/or. the stator not in each case touched. With the term “non-cutting touched” is stated that the respective outer surface does not cut the dipole magnets touched, but their volume. It means that the respective outer surface concerns the dipole magnets exclusive, i.e. superficial touched.

It is particularly favourable, if the rotor and/or the stator cover a support body from non magnetic material with recesses to the receptacle of the dipole magnets. The support body serves to hold the dipole magnets at a defined position. The dipole magnets are in recesses of the support body intended in addition fixed.

In a prefered embodiment the stator is formed as inner stator, which is rotor regarding the stator formed as inner stator at least partial radial other outer arranged and solid with the shaft connected, and the apparatus exhibits a coaxial outside stator arranged to the shaft, which is at least partial radial other outer arranged regarding the rotor. In addition the dipole magnets in or more second magnet sequences of the uniform over the scope of the second circular cylinder distributed and regarding the shaft axis axial against each other so offset are with this prefered embodiment that on the outer surface of the second circular cylinder a treppenförmige arrangement of the dipole magnets results and partly overlaps adjacent dipole magnets regarding the shaft axis axial. Besides the rotor k exhibits first magnet sequences with this prefered embodiment, whereby k is a whole number of large or same four, and which is two or more dipole magnets of the k first magnet sequences so formed that her two or more on that Outer surface of the first circular cylinder longitudinal series with in each case k uniform dipole magnet distributed on the scope of the first circular cylinder train. Beyond that the dipole magnets of series lie in a vertical plane longitudinal to the shaft axis with this prefered embodiment, and the dipole magnets of adjacent rows are against each other alternate so offset that they form axial to the shaft axis a zigzag pattern uniform over the circular cylinder extent. In addition the outside stator two or more exhibits arranged dipole magnets with this prefered embodiment, which are uniform distributed on the outer surface on one the outer surface of a third circular cylinder.

In a prefered embodiment the magnets of the inner stator, the rotor and the outside stator at least partly overlap. A partial coverage of two magnets is satisfied if a vertical plane longitudinal to the shaft exists, which runs by each of the two magnets. From a complete coverage of two magnets spoken becomes if for each point one of the two magnets a vertical plane longitudinal to the shaft exists, which runs by each of the two magnets. A partial coverage of three magnets is satisfied if a vertical plane longitudinal to the shaft exists, which runs by each of the three magnets. From a complete coverage of three magnets spoken becomes if for each point of two of the three magnets a vertical plane longitudinal to the shaft exists, which runs by each of the three magnets. It can become an engagement factor defined: with an engagement factor of 0% two/three magnets do not overlap, with an engagement factor of 100% overlap two/three magnets complete.

In a particularly prefered embodiment of the apparatus are the inner stator and the rotor axial arranged fixed to the shaft axis and the magnets of the inner stator and the rotor overlap complete. Beyond that the outside stator is axial arranged movable to the shaft axis, so that that Engagement factor of the magnets of the outside stator and the magnets of the rotor continuous in a range from 0% to 100% changed will can.

The magnets of the inner stator, the rotor and the outside stator define one meant hollow cylinder each with common longitudinal axis (= the shaft axis), are arranged within whose wall the magnets. In case of a partial coverage of the three magnets the three meant hollow cylinders lie on top of each other at least in a portion the longitudinal axis radial. This portion the longitudinal axis forms thereby the longitudinal axis of the meant cylinder cavity, whose longitudinal axis coaxial runs to the shaft. In case of a complete coverage of the magnets of the three devices (= inner stator, rotor and outside stator) two of the three meant hollow cylinders always radial lie over or bottom third of the three meant hollow cylinders.

Preferably the rotor has the form of a drum or a cup, i.e. it points an hollow cylinder with annular cross section and/or. a pipe section up, whose is a face by a coaxial circular disk covered. In the center of the circular disk the rotor exhibits a bore, by whom the shaft axis runs. The circular disk knows an additional ring inertial, which serves for the compound of the rotor with the shaft, e.g. by means of a screw connection, which runs by a radial bore in the ring. The rotor is stationary connected with the shaft, is called the relative position of the rotor regarding the shaft remains with a rotation of the shaft during the intended operation of the apparatus unchanged. Nevertheless the bolt mounting, which connects the rotor with the shaft, can become dissolved, e.g. to the maintenance, purification, exchange of defective parts, etc. The hollow cylinder of the rotor surrounds the outer surface of the cylindrical inner stator bottom formation of an annular air gap between the rotor and the inner stator.

It is also possible that the circular disk, which takes a face off of the rotor hollow cylinder exhibits two or more dipole magnets, which are arranged on a circumference regarding the center of the circular disk. The magnetic dipole axle of the dipole magnets runs parallel to the shaft axis. A bottom magnetic dipole axle, or short: Dipole axle, a dipole magnet becomes a straight one understood, which connects the south pole and the north pole of the dipole magnet. Preferably the dipole magnets are uniform distributed on the circumference.

It is particularly favourable, if the outside stator surrounds hollow-cylindrical or the circle-tubular rotor. It is possible for the example that the outside stator the form of an hollow cylinder and/or. Circular pipe exhibits, whose central axis with the central axis of the rotor coincides. The hollow cylinder of the outside stator surrounds the outer surface of the hollow-cylindrical rotor bottom formation of an annular air gap between the outside stator and the rotor.

With a prefered embodiment the dipole magnets of the outside stator exhibit a rod-shaped geometry and run with their Stabbzw. Longitudinal axis parallel to longitudinal axis of the circular pipe, i.e. parallel to the axis of the shaft (= shaft axis). It is prefered, if the dipole magnets of the outside stator essentially extend over the whole length of the outside stator formed in form of a circular pipe. “Essentially” it can mean that the outside stator at its faces exhibits still another edge or a cover disk, at which the dipole magnets ends. The magnetic dipole axles of the dipole magnets of the outside stator preferably lie in a plane, which runs rectangular to the longitudinal axis of the dipole magnets.

It is also possible that the preferably rod-shaped dipole magnets of the outside stator are arranged in the form of or more rings along the scope of the outside stator. Everyone of the rings formed from the dipole magnets lies in a plane, which runs vertical to the shaft axis. A ring the formed dipole magnets are among themselves by bars from non magnetic material from each other separate. Between the single rings formed from the dipole magnets annular ridges from non magnetic material run along the scope of the outside stator. Preferably the insides of the dipole magnets oriented to the shaft axis lie on an outer surface of a circular hollow cylinder. It is prefered that the dipole magnet rings are uniform over the full height of the outside stator distributed.

In a prefered embodiment of the invention the inner stator and the outside stator are fixed arranged. The inner stator and the outside stator can be assistance of fasteners and/or guide means not-rotatable at a mechanical housing to the receptacle of the apparatus arranged.

In a prefered embodiment the shaft penetrates the inner stator not, but is only with the rotor connected. The rotor becomes held by the magnetic fields of the apparatus in Schwebe. Therefore an additional mechanical storage of the rotor is not necessary by means of a bearing. The shaft becomes formed in this case by a pin, which is distant outward from the circular disk at the face of the rotor arranged at the rotor. In an alternative embodiment of the apparatus extended itself the shaft over the whole length of the apparatus. The shaft runs along the central axis of the inner stator and serves as additional mechanical guide member of the rotor. In this case the inner stator points preferably a bearing, e.g. a rolling bearing, up, is rotatably supported in which the shaft.

It is also possible that the rotor and the outside stator consist in each case of two halves. Preferably these halves are symmetrical in each case formed, concerning a plane of symmetry, which runs vertical to the shaft axis. This plane of symmetry penetrates simultaneous also the inner stator, which is split up in this way into two same prolonged meant halves. In the range that

Plane of symmetry is a fastener arranged, is stationary fixed by means of which the inner stator at the mechanical housing. Preferably this fastener separates the two halves of the rotor and the two halves of the outside stator bottom formation from air gaps. It is also possible that the two halves of the outside stator are more slidable concerning the shaft axis.

In a prefered embodiment the two halves of the outside stator symmetrical are so more slidable to the plane of symmetry that the engagement factor of the magnets of the rotor is more adjustable by the magnets of the outside stator stepless in a range of zero percent to one hundred percent. That e.g. is. realizable by means of a threaded shaft with two threads moving in opposite directions, moving in opposite directions arranged at which the two halves of the outside stator are in the threaded portions. Depending upon a direction of rotation of the threaded shaft the two halves of the outside stator move away one on the other too or from each other.

An angle [alpha] is defined as the angles between the dipole axle of a dipole magnet of the inner stator and a tangent to the scope of the inner stator, whereby the tangent runs by a point on the scope, in which the dipole axle the scope penetrates. An angle ss is defined as the angles between the dipole axle of a dipole magnet of the rotor and a tangent to the scope of the rotor, whereby the tangent runs by a point on the scope, in which the dipole axle the scope penetrates. An angle Y is defined as the angles between the dipole axle of a dipole magnet of the outside stator and a tangent to the scope of the outside stator, whereby the tangent runs by a point on the scope, in which the dipole axle the scope penetrates. In a prefered embodiment of the invention the angles [alpha] are appropriate, ss and for y in a range of values of 14 [deg.] < [alpha], ss, y <= 90 [deg.]. It is possible that the dipole axle of a dipole magnet in a plane vertical runs to the shaft axis, which an angle [alpha], ss, Y of 90 [deg.] corresponds.

In the case that mentioned tangent runs to the scope of the inner stator parallel to the tangent to the scope of the outer surface of the second circular cylinder, the angle [alpha] corresponds to the inclination angle. In the case that mentioned tangent runs to the scope of the rotor parallel to the tangent to the scope of the outer surface of the first circular cylinder, the angle corresponds ss to the inclination angle.

It is particularly favourable, if the dipole magnets of the inner stator and/or the outside stator in a cutting plane vertical exhibit a rectangular or a trapezoidal cross section to the shaft axis. Further it is particularly favourable, if the dipole magnets of the rotor in a cutting plane vertical exhibit a point-symmetrical, preferably a circular, to the magnetic dipole axle of the dipole magnets cross section. In addition, there is other one, non-point-symmetrical cross sections possible, e.g. trapezoidal, triangular, or irregular formed cross sections.

In an other prefered embodiment the dipole magnets of the inner stator and/or the outside stator parallel exhibit the largest expansion to the shaft axis. It means that the dipole magnets of the inner stator and/or the outside stator a geometry exhibit rod-shaped. The expansion parallel to the dipole axle is small parallel as the expansion to the shaft axis. It is possible that all dipole magnets of the inner stator a same outer shape, i.e. the same geometry, exhibit. It is also possible that all dipole magnets of the outside stator a same outer shape, i.e. the same geometry, exhibit. It is also possible that all dipole magnets of the rotor a same outer shape, i.e. the same geometry, exhibit. With outer shape and/or. Geometry are only the outer dimensions meant; the magnetic orientation, i.e. the layer of the magnetic north pole and the magnetic south pole, is independent of it and can individual from magnet to magnet vary.

In a prefered magnet assembly of the apparatus the magnets of the inner stator, the rotor and the outside stator are same in each case oriented, so that they repel themselves in each Winkellage of the rotor. For the example that points north pole outward, with all dipole magnets on the rotor that north pole inward and that south pole outward, and with all dipole magnets on the outside stator that south pole inward with all dipole magnets on the inner stator.

Other features, details and advantages of the invention result from the ensuing description of several embodiments of apparatuses according to invention on the basis the designs.

Fig. 1a, 1 b are cross sections of a stator with a magnet sequence;

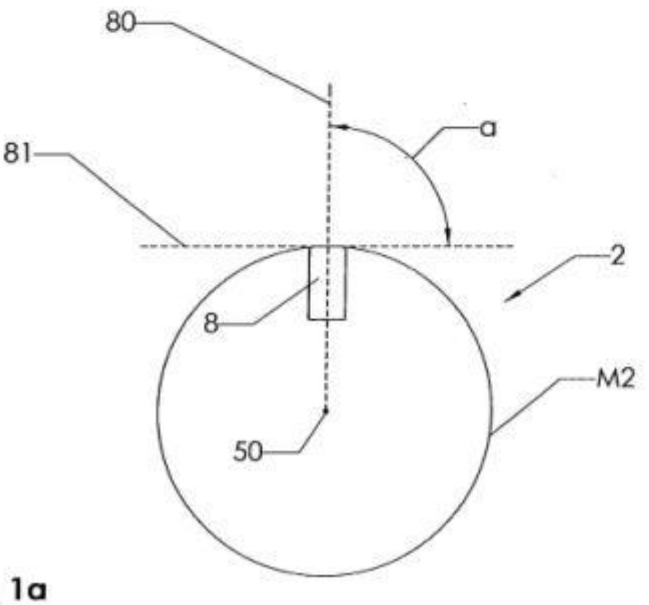


FIG. 1a

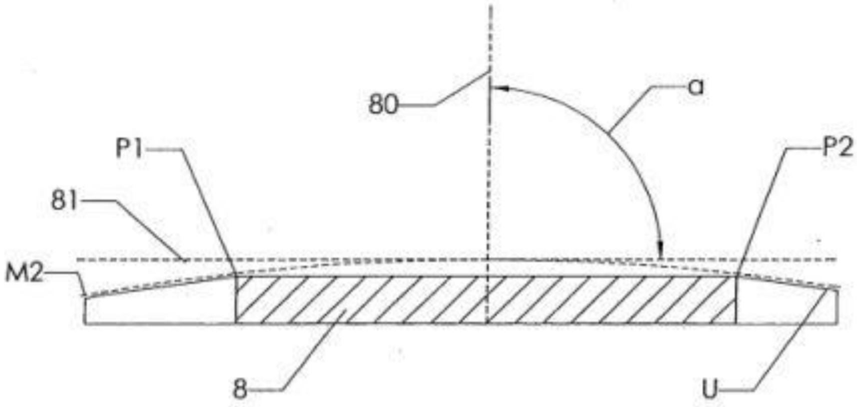


FIG. 1b

Fig. 2a, 2b are cross sections of stators with multiple magnet sequences;

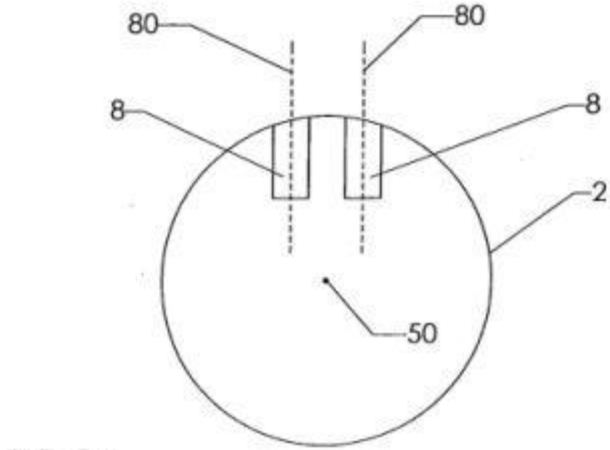


FIG. 2a

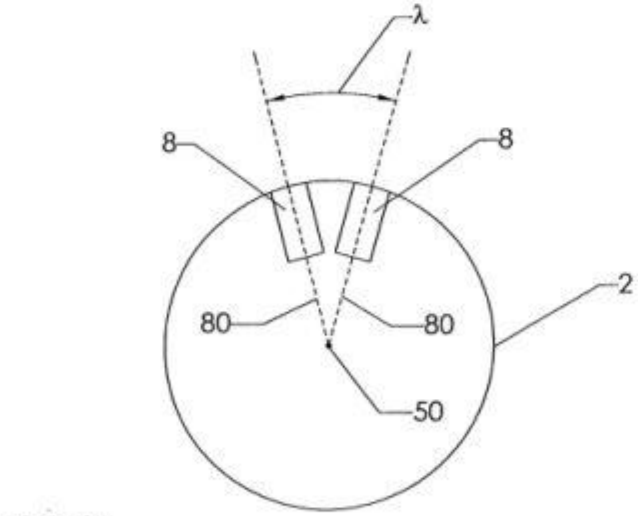


FIG. 2b

Fig. 3a, 3b developments of outer surfaces of stators;

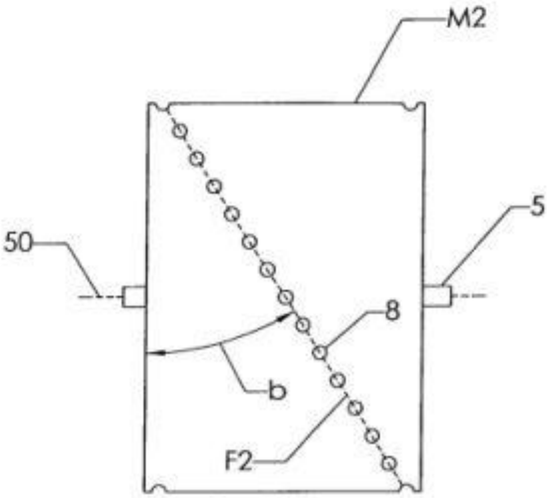


FIG. 3a

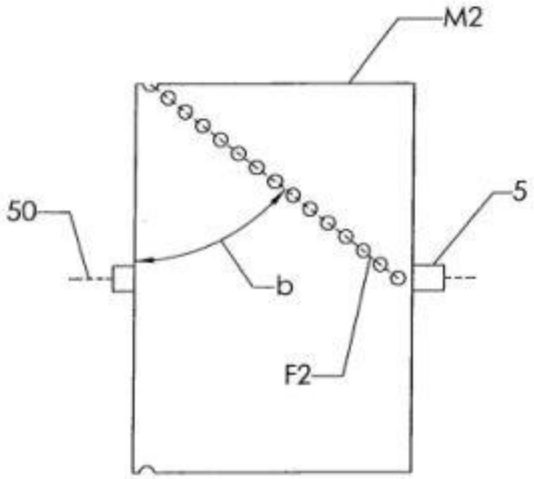


FIG. 3b

Fig. 4 developments of outer surfaces of a stator and a rotor;

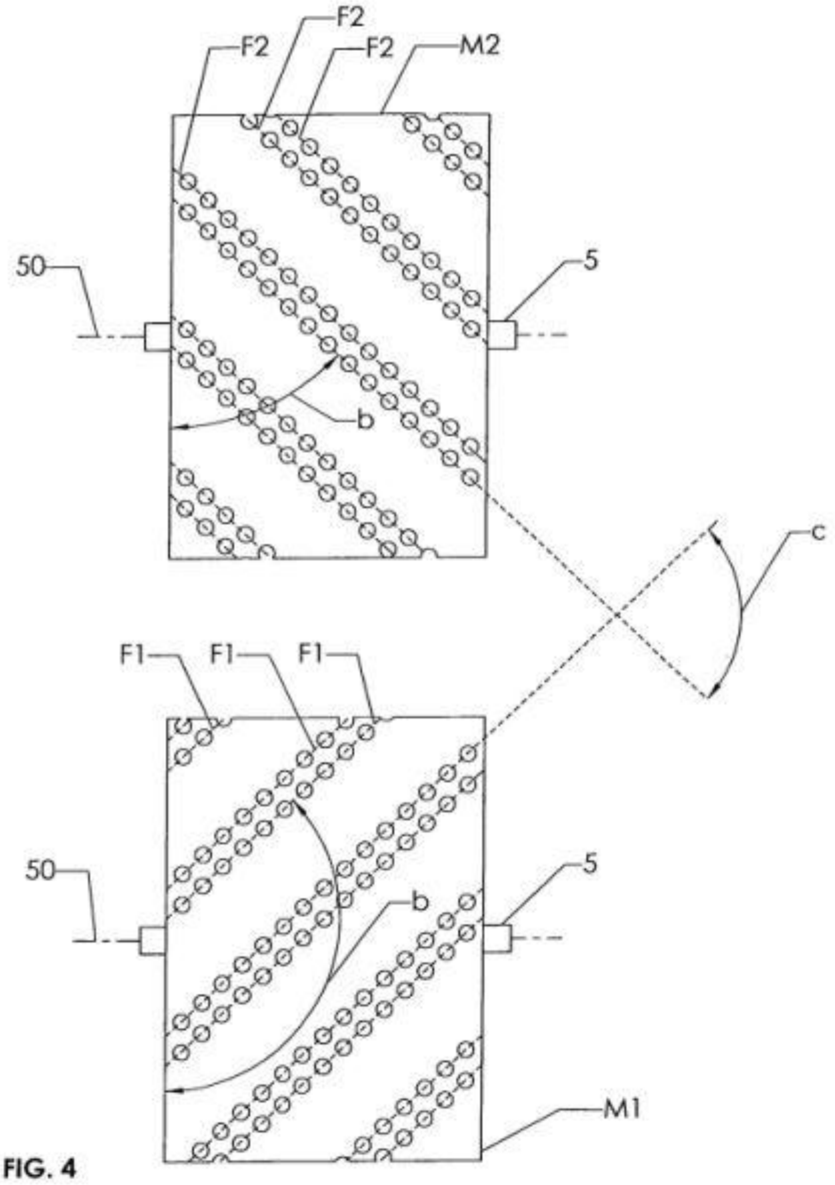


FIG. 4

Fig. 5a - 5c a side view and cross sections of a stator;

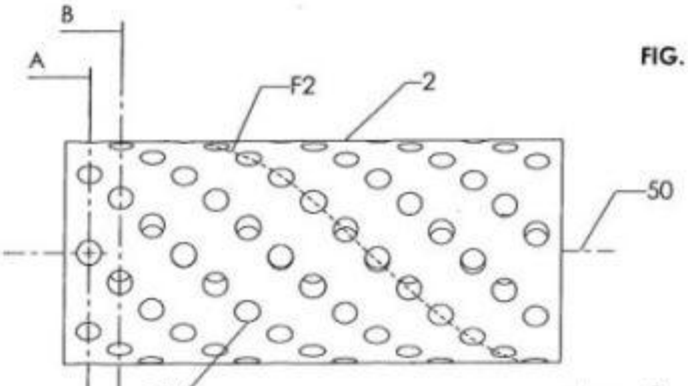


FIG. 5a

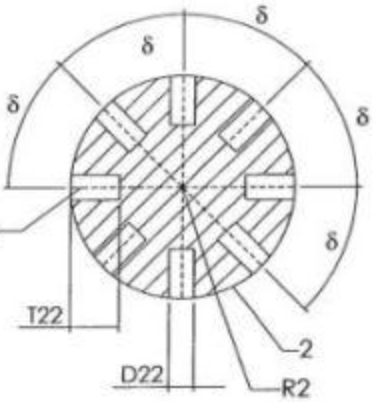


FIG. 5b

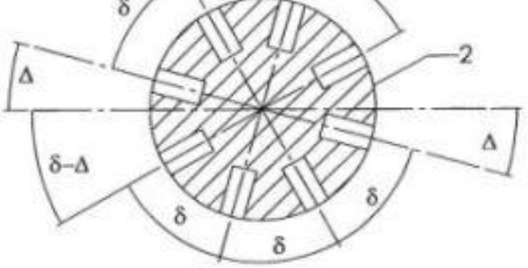


FIG. 5c

Fig. 6a - 6f shows, a longitudinal section and cross sections of a rotor; Fig. 7a - 7d views and a cross section of a stator;

FIG. 6a

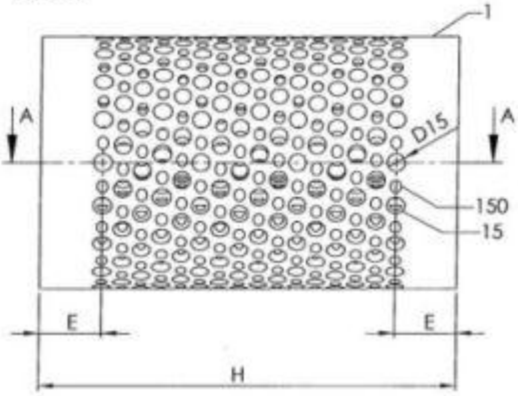
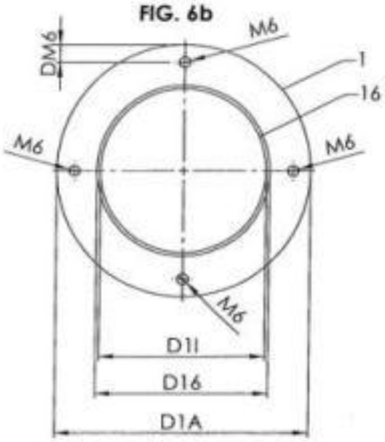


FIG. 6b



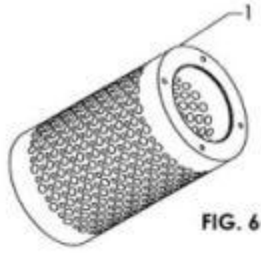


FIG. 6c

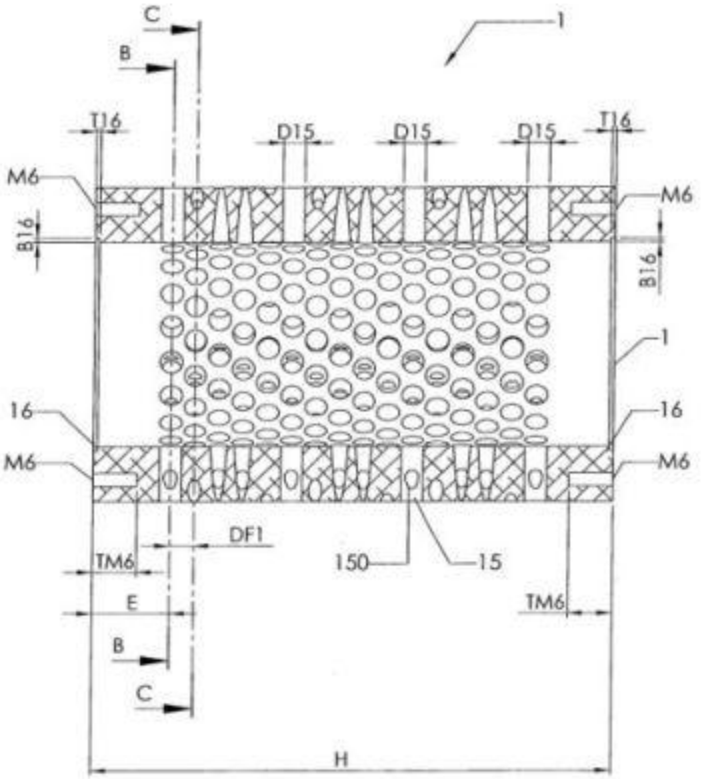

C
B
1
T16
D15
D15
D15
T16
M6
M6
B16
B16
1
16
16
M6
M6
DF1
TM6
150
15
E
TM6
B
C
H

FIG. 6d

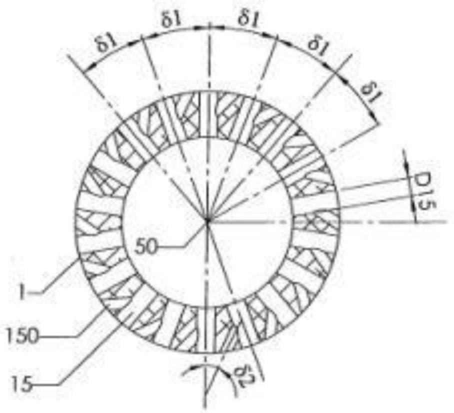


FIG. 6e

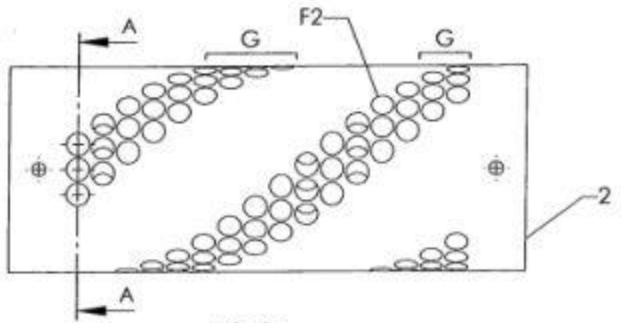


FIG. 7a

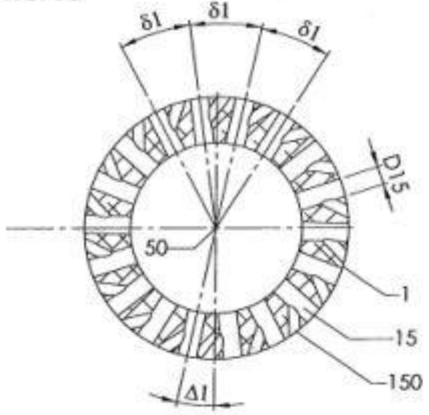


FIG. 6f

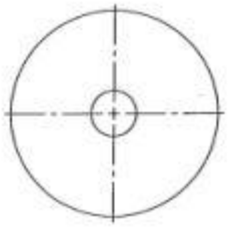


FIG. 7b

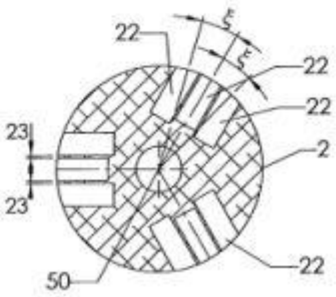


FIG. 7c

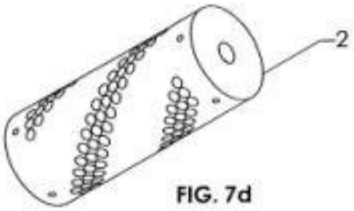


FIG. 7d

Fig. 8a - 8d shows and a cross section of a stator;

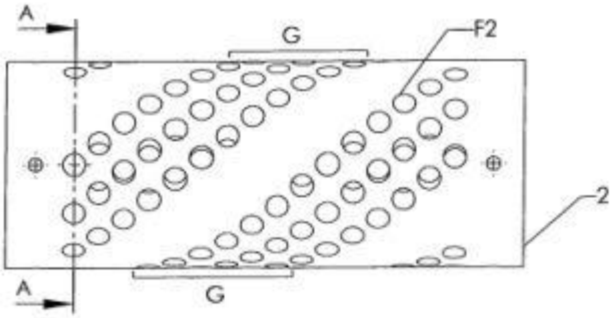


FIG. 8a

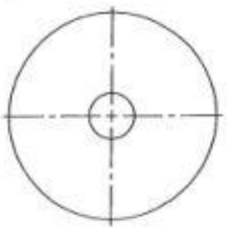


FIG. 8b

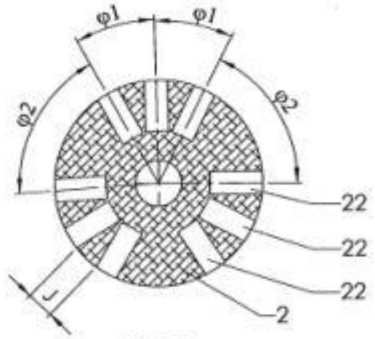


FIG. 8c

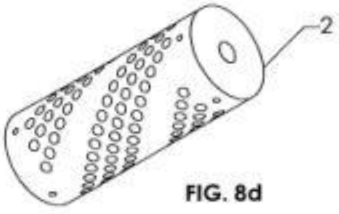


FIG. 8d

Fig. 9a - 9h illustrate the pitch angle;

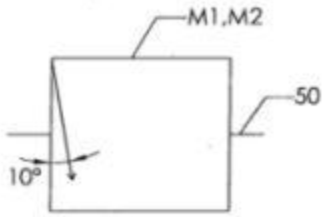


FIG. 9a

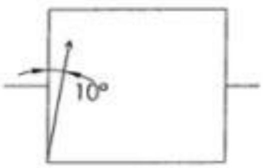


FIG. 9e

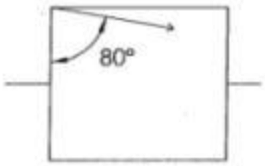


FIG. 9b

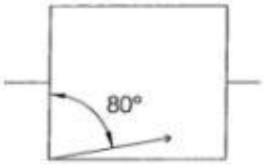


FIG. 9f

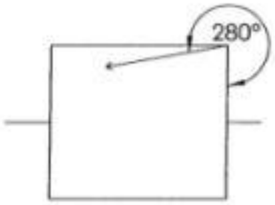


FIG. 9c

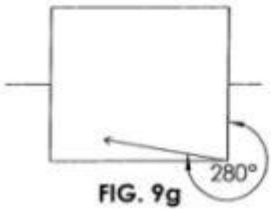


FIG. 9g

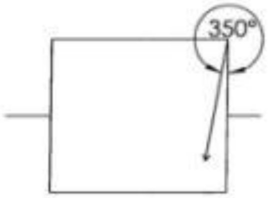


FIG. 9d

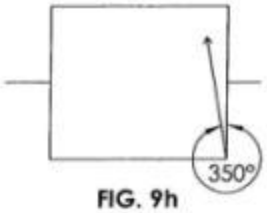


FIG. 9h

Fig. 10 illustrates of the relationship between Magnet sequences and magnet rows of the rotor;

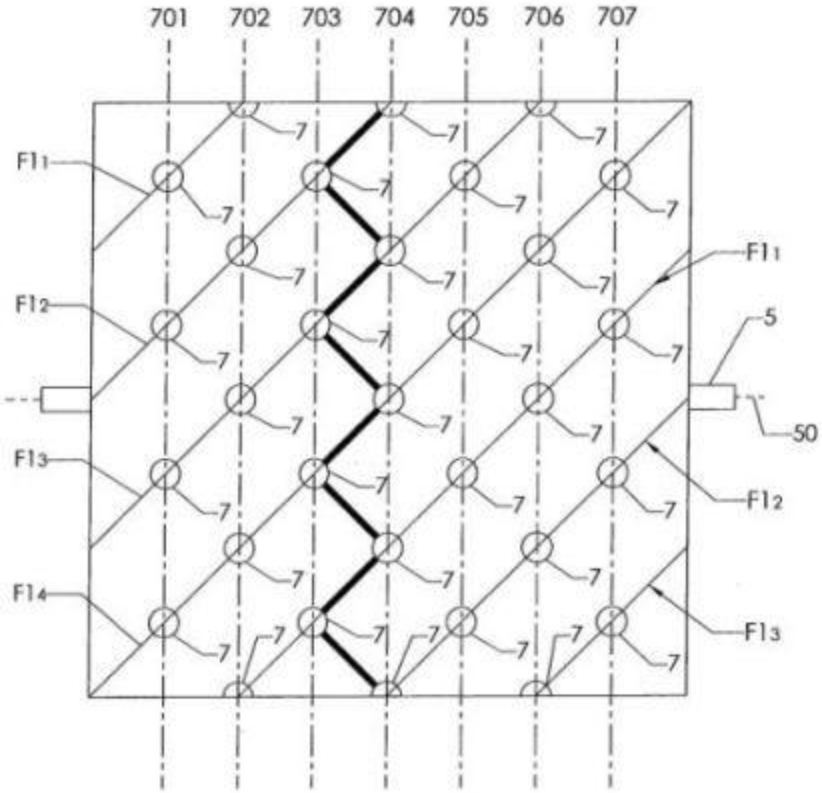


FIG. 10

Fig. 11 is a representation of an apparatus according to invention with one rotor and two stators;

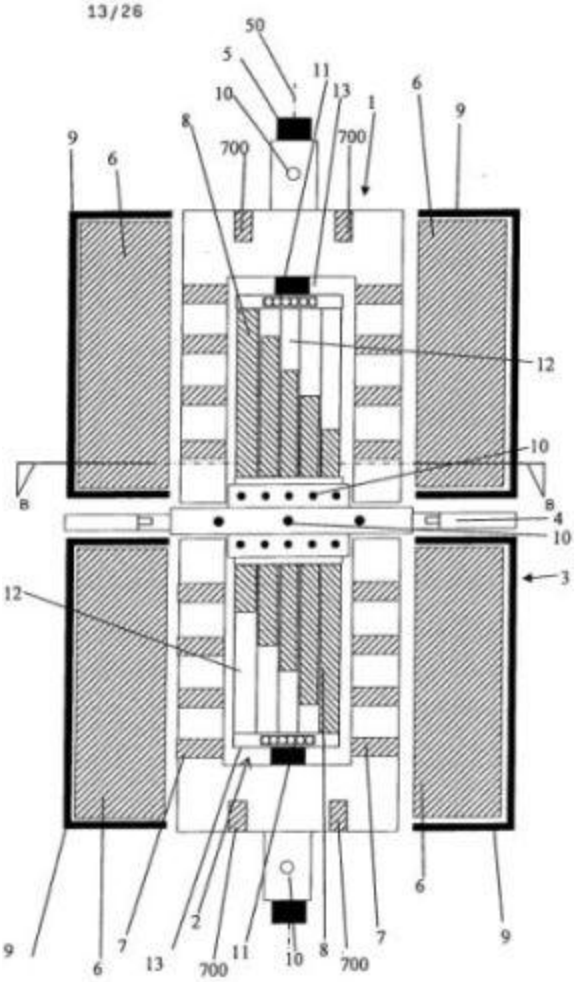


Fig. 11

Fig. 12a an oblique view of the inner stator of the apparatus after Fig. 11 without magnets (= stator core);

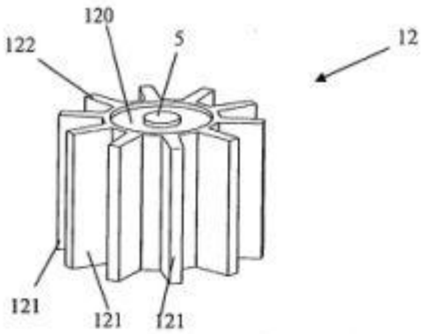


Fig. 12a

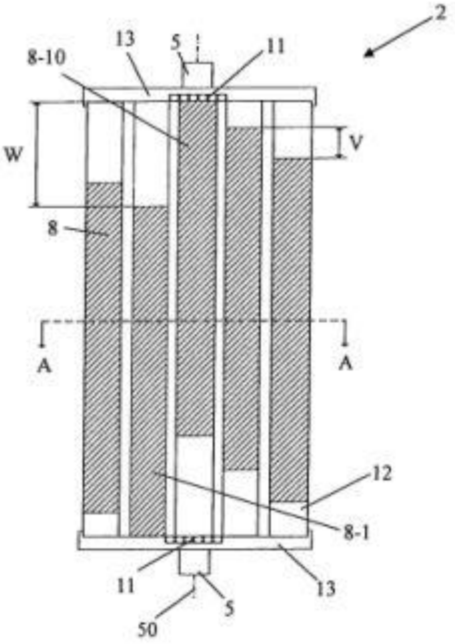


Fig. 12b

Fig. 12b a schematic representation of the inner stator of the apparatus after Fig. 11, vertical to the shaft axis;

Fig. 13 a development of the magnet assembly on the inner stator of the apparatus after Fig. 11 ;

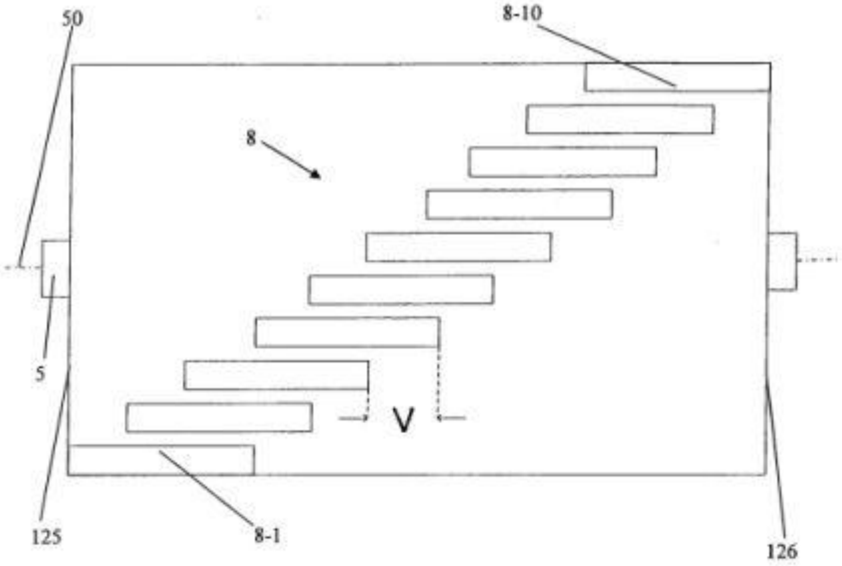


Fig. 13

Fig. 14 a section by the inner stator of the apparatus after Fig. 11, along in Fig. 12b indicated line A-A;

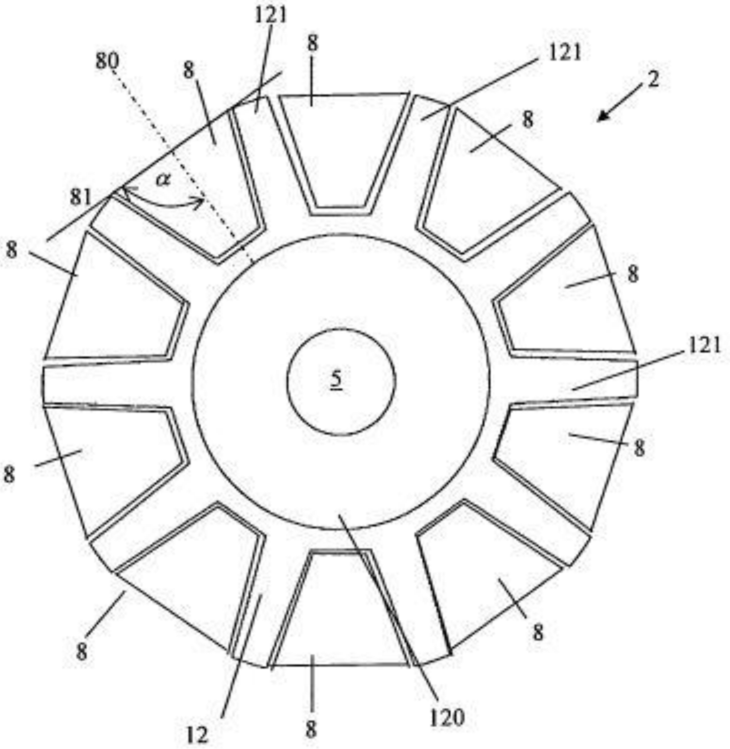


Fig. 14

Fig. 15a a view of the fastener of the apparatus after Fig. 11, vertical to the shaft axis;

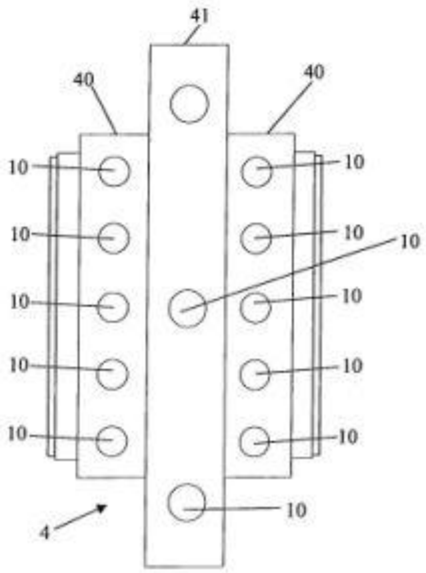


Fig. 15a

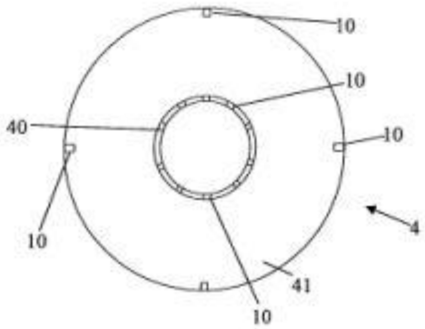


Fig. 15b

Fig. 15b a view of the fastener of the apparatus after Fig. 11, toward the shaft axis;

Fig. 16 an oblique view of the rotor of the apparatus after Fig. 11;

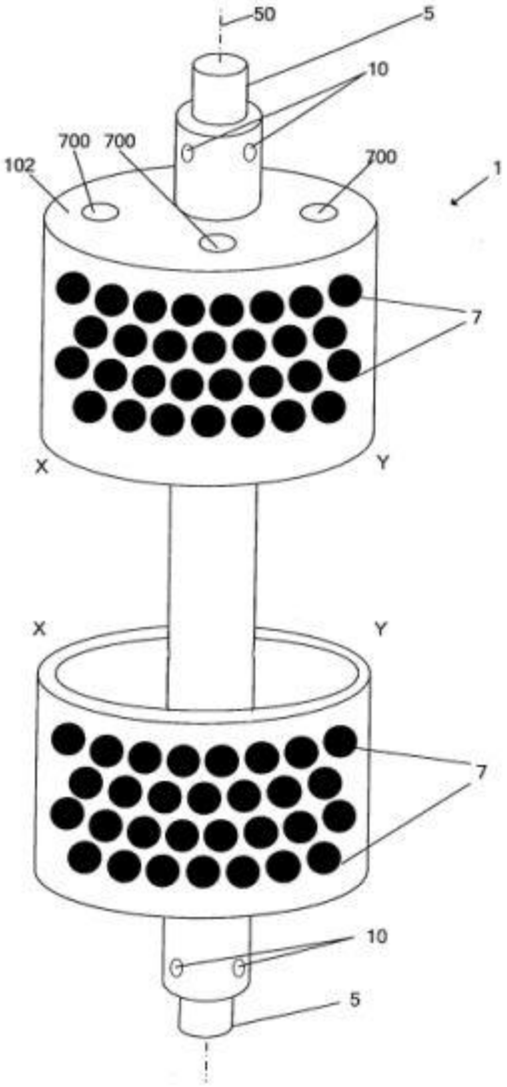
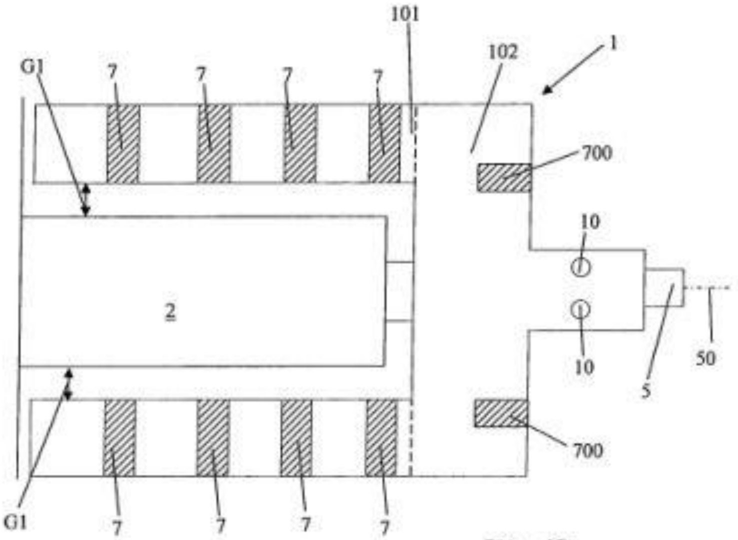


Fig. 16

Fig. 17a a schematic view of the inner stator and the rotor of the apparatus after Fig. 11; Fig. 17b a scheme of possible inclination angles of the dipole magnets of the rotor of the apparatus after Fig. 11 ;



Fig, 17a

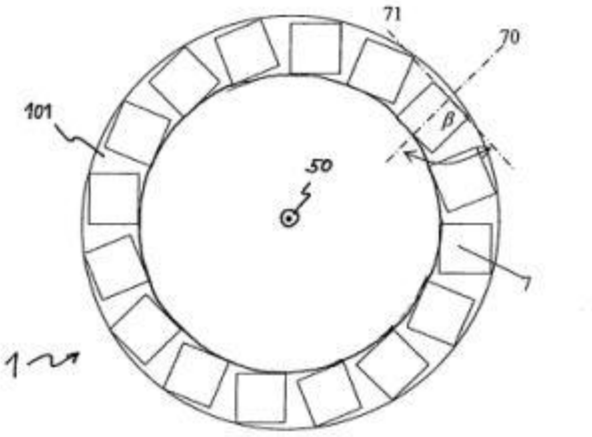


Fig. 17b

Fig. 18a a development of the magnet assembly of the rotor of the apparatus after Fig. 11, along in Fig. 16 direction indicated XY;

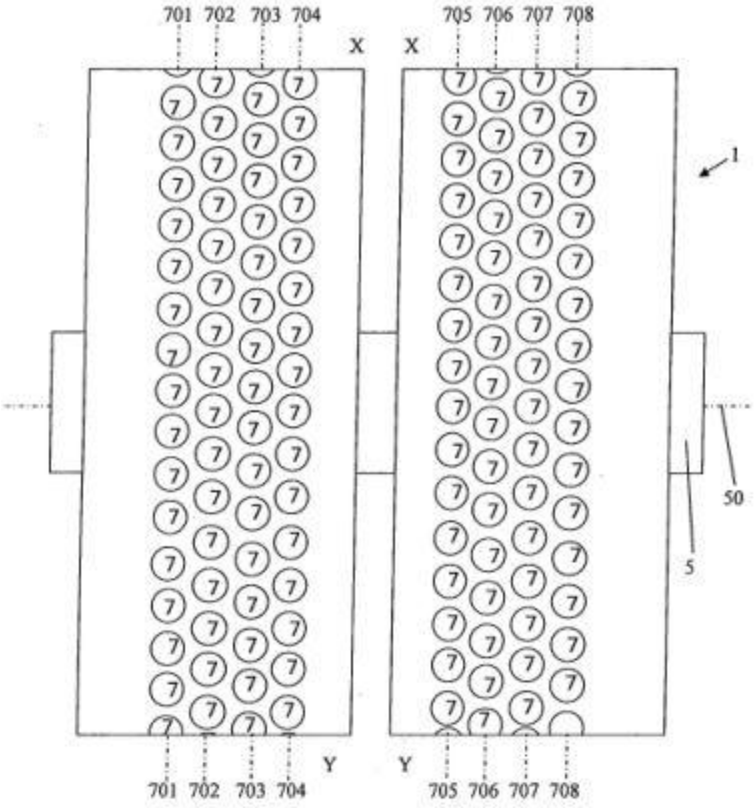


Fig. 18a

Fig. 18b a detail view of the development in accordance with Fig. 18a;

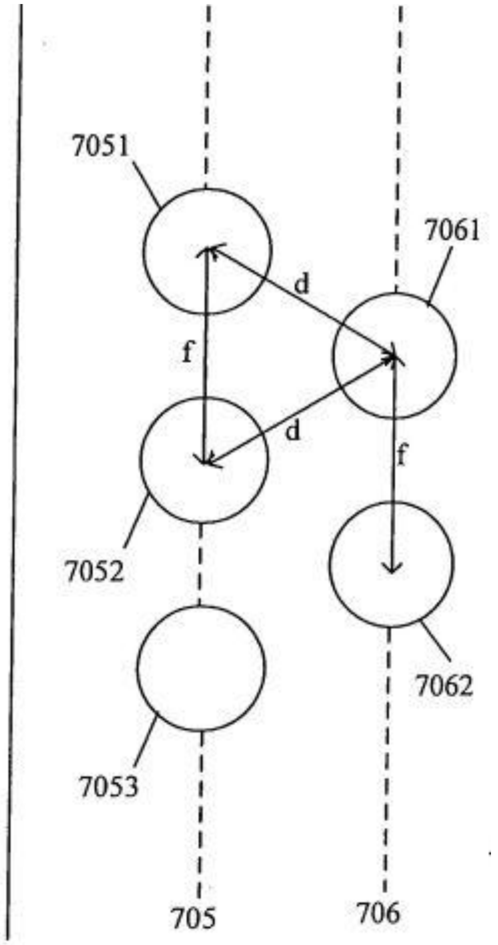


Fig. 18b

Fig. 19a a longitudinal section by a mechanical housing to the receptacle of the apparatus after Fig. 11 ;

Fig. 19b a section by the outside stator of the apparatus after Fig. 11, vertical to the shaft axis;

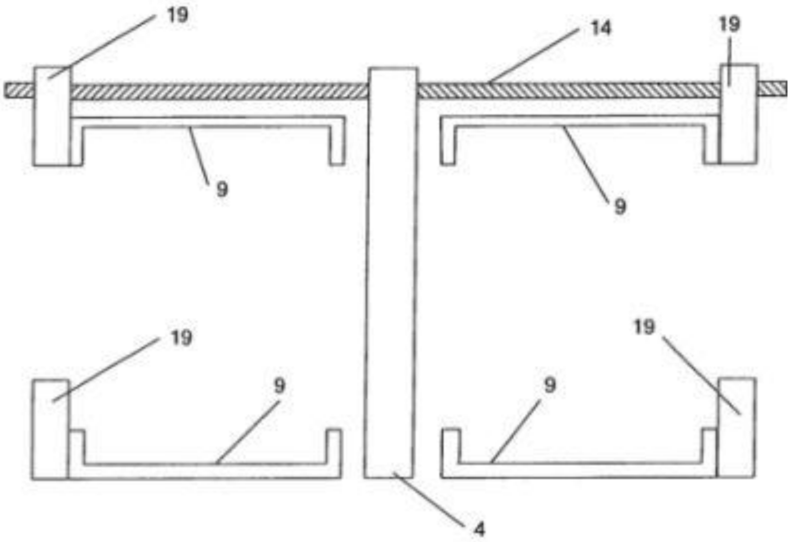


Fig. 19a

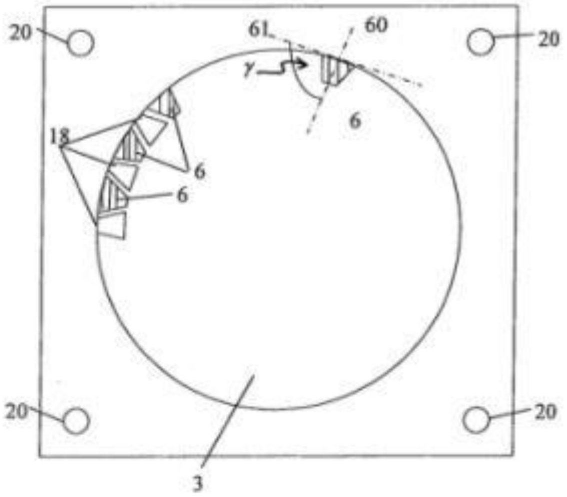


Fig. 19b

Fig. 20 is an oblique view of the outside stator and the mechanical housing to the receptacle of the apparatus after Fig. 11;

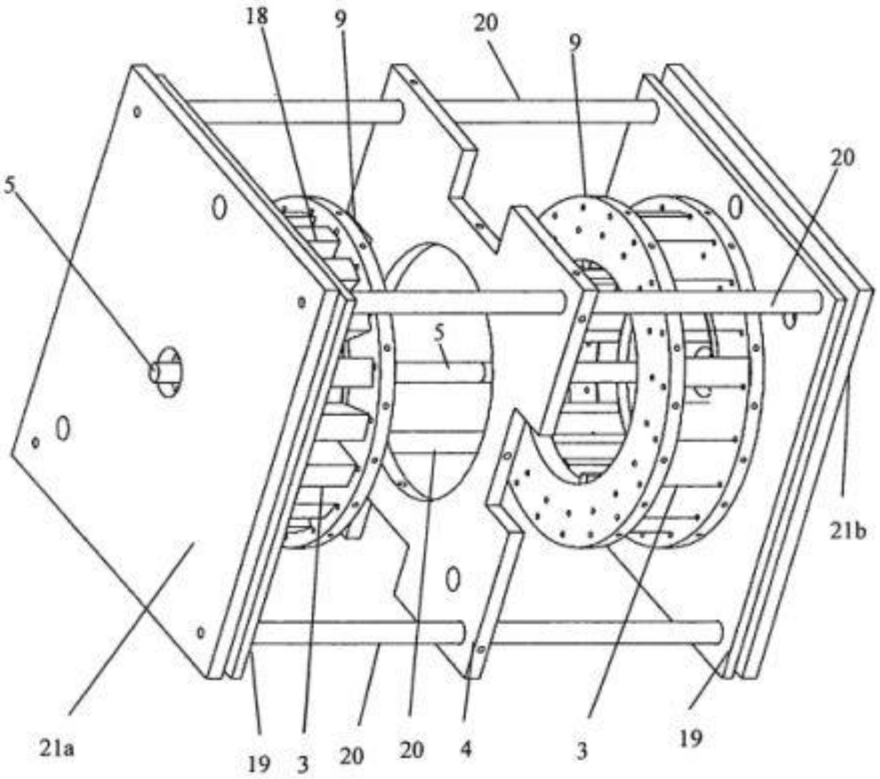


Fig. 21 a scheme of the magnet assembly on the stators and the rotor of the apparatus after Fig. 11, shown as section along that Shaft axis;

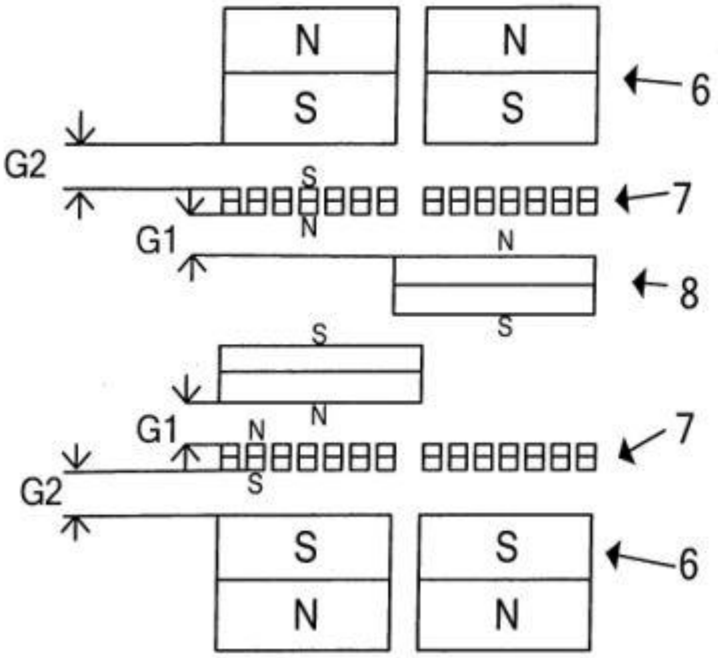


Fig. 22 a scheme of the magnet assembly on the stators and the rotor that Apparatus after Fig. 11, shown as section along in Fig. 11 indicated line B-B;

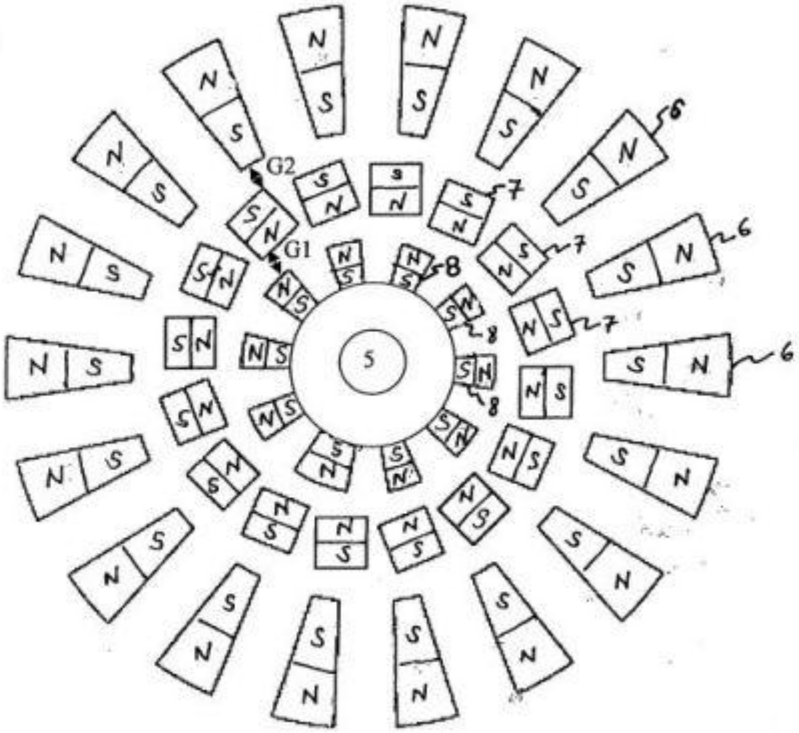


Fig. 23a is a schematic representation of a dipole magnet of the outside stator of the apparatus after Fig. 11 ;

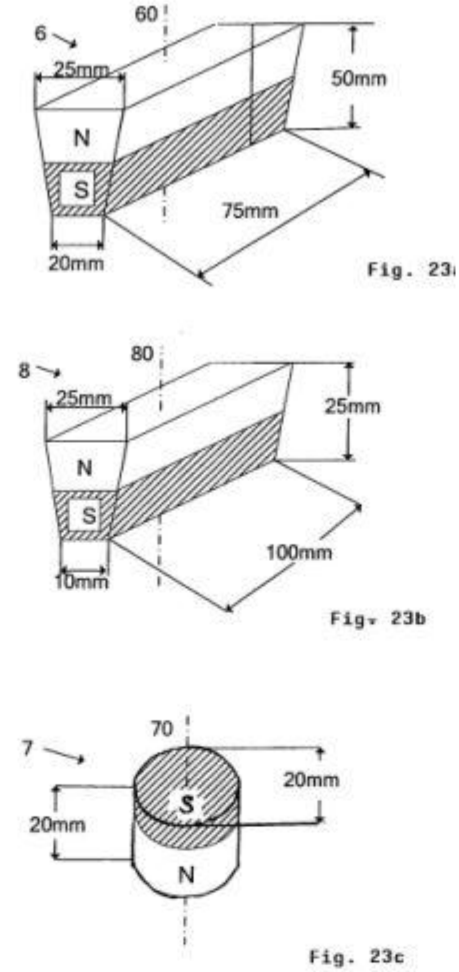


Fig. 23

Fig. 23b

Fig. 23c

Fig. 23

Fig. 23b is a schematic representation of a dipole magnet of the inner stator of the apparatus after Fig. 11 ; and

Fig. 23c is a schematic representation of a dipole magnet of the rotor of the apparatus after Fig. 11. Fig. 1a shows a cross section of a stator 2, whereby the cutting plane orthogonal to the shaft axis 50 runs. The stator 2 exhibits a circular cross section. The stator 2 covers a magnet sequence of dipole magnet 8. The magnetic dipole axle 80 one of these dipole magnets 8 lies in the cutting plane. The dipole magnet 8 is on an outer surface M2 of a coaxial first circular cylinder arranged oriented to the shaft axis 50. To the outer surface M2 a tangent longitudinal in the cutting plane is 81 placed, those the outer surface M2 at the point touched, at which the dipole axle 80 breaks through the outer surface. The angle between the dipole axle 80 and the tangent 81 is the inclination angle A, which amounts to in the present example 90 degree.

Fig.1 b shows a detail of Fig. 1a. The dipole magnet 8 touched those dashed drawn outer surface M2 in the contact points P1, P2. The scope U of the stator 2 drawn with a continuous line follows the planar

Front surface of the dipole magnet 8 and deviates therefore in the range of the dipole magnet 8 from the cylindrical outer surface M2.

Fig. 2a shows a cross section of a stator 2 with first and a second magnet sequence. The stator 2 covers two dipole magnets 8, which are next to each other arranged. The magnetic dipole axles 80 of the two dipole magnets 8 are appropriate for parallel in the cutting plane and run. The left dipole magnet 8 is component of the first magnet sequence of the stator 2, the right dipole magnet 8 is component of the second magnet sequence of the stator 2.

Fig. 2b shows a cross section of a stator 2 with first and a second magnet sequence. The stator 2 covers two dipole magnets 8, which are next to each other arranged. The magnetic dipole axles 80 of the two dipole magnets 8 lie in the cutting plane, cut the shaft axis 50 and include an angle [lambda]. The left dipole magnet 8 is component of the first magnet sequence of the stator 2, the right dipole magnet 8 is component of the second magnet sequence of the stator 2.

Fig. 3a shows a development of an outer surface M2 of a cylindrical stator with a magnet sequence F2. The orientation of the outer surface M2 is 50 defined by the indication of the shaft 5 and the shaft axis. The magnet sequence F2 begins at the left side of the outer surface M2 and ends at the right side of the outer surface M2. The dipole magnets 8 of the magnet sequence F2 lie on a straight one. The arrangement of the magnet sequence F2 on the outer surface M2 is the straight one defined by a pitch angle b. The pitch angle b corresponds to the intersection angle between the straight one of the magnet sequence F2 and a vertical plane longitudinal to the shaft axis 50. The magnet sequence F2 describes a whole turn (= 360 degree) in its course along the shaft axis 50 around the shaft axis 50.

Fig. 3b shows - corresponding Fig. 3a - a development of an outer surface M2 of a cylindrical stator with a magnet sequence F2. Compared with in Fig. 3a magnet sequence shown is the pitch angle b in Fig. 3b magnet sequence shown F2 larger. Therefore the magnet sequence F2 in their course describes an half turn (= 180 degree) along the shaft axis 50 only around the shaft axis 50.

Fig. a development of an outer surface M2 of a stator with magnet sequences F2 and a development of an outer surface M1 the stator of an associated rotor with magnet sequences F1 shows 4. The dipole magnets of the magnet sequences F1, F2 lie in each case on straight ones. Those the stator associated straight one and those the rotor associated straight one separate a bottom angle of attack C.

Fig. a plan view of a stator 2 shows ä. The stator 2 has the form of a cylinder, whose axis of rotation lies in the image plane and coincides with the shaft axis 50. The stator exhibits eight magnet sequences F2. A support body of the stator 2 surrounds the pole faces by cylindrical dipole magnet 7 of the magnet sequences F2, which are in recesses of the support body.

Fig. 5b shows a cross section in Fig. ä represented stator 2 along a cutting plane A-A, like in Fig. ä shown. In the section uniform are to be recognized over the scope of the stator 2 distributed recesses 22 for the dipole magnets. Everyone of the recesses 22 visible in the section is a separate magnet sequence F2 associated. Related to the shaft axis of the stator 2 is the recess 22 of a magnet sequence F2 around the angle [delta] opposite the recess 22 of an adjacent magnet sequence F2 rotated. In the present embodiment the angle [delta] amounts to = 45 degree. The radius R2 of the cylindrical stator 2 amounts to in the present embodiment 45 mm. The depth T22 of the cylindrical recesses 22 amounts to in the present embodiment 22.22 mm, its diameter D22 has e.g. a value of 10 mm.

Fig. 5c shows a cross section in Fig. ä represented stator 2 along a cutting plane B-B, like in Fig. ä shown. Opposite in Fig. 5b represented section are the recesses around an angle [delta] around the shaft axis 50 twisted. Within a magnet sequence F2 adjacent dipole magnets are 8 thus against each other twisted regarding the shaft axis 50 around an angle [delta]. In the present embodiment the angle [delta] amounts to = 12 degree.

Fig. 6a shows a plan view of a rotor 1. The rotor 1 has the form of an hollow cylinder with an height of H. The height of H e.g. amounts to. 235 mm. The wall of the rotor 1 exhibits the wall penetrating holes, which serve 15 as recesses for the receptacle of the dipole magnets. The magnet sequences of the rotor 1 begin in a distance E of the face of the rotor 1 and end in the distance E of the opposite face of the rotor 1. In the present embodiment the distance E amounts to 35 mm. The diameter D15 of the cylindrical recesses 15 e.g. amounts to. 10 mm. Each recess 15 is a retaining mechanism to the fixation of the dipole magnets 7 associated used into the recesses 15. The retaining mechanism consists of a threaded hole 150 and a threaded pin, which are pivoted into the threaded hole and for the fixation of the dipole magnet 7 serve.

Fig. 6b shows a view of on the left of in Fig. 6a of represented rotor 1. The outer diameter D1A of the rotor 1 e.g. amounts to. 143 mm, its inner diameter D1 I e.g. 93 mm. The rotor 1 exhibits uniform threaded holes M6 distributed over the scope, which are in a distance DM6 of the outer periphery mounted at its face. The threaded holes M6 can exhibit for example a metrical ISO thread with a nominal diameter M6 (ISO = international organization for standardization). The distance DM6 e.g. amounts to. 10 mm. These threaded holes M6 serve to fasten a lid on the face of the rotor 1 is 5 connected over which the rotor 1 with the shaft. At each face the rotor 1 e.g. exhibits a circumferential groove 16, their outer diameter D16. 97 mm amounts to. This groove 16 takes up a corresponding circular projection of the lid.

Fig. 6c shows a three-dimensional view in Fig. 6a of represented rotor 1.

Fig. 6d shows a longitudinal section in Fig. 6a of represented rotor 1 along in Fig. 6a indicated cutting plane A-A. The depth TM6 of the Boreholes M6 mounted in the faces points a value from e.g. 20 mm up. The depth T16, of the circumferential grooves 16 arranged at the faces e.g. amounts to. 2 mm, its width B16 has a value of e.g. 2 mm. In Fig. 6d are to be recognized in various recesses of 15 threaded holes 150, which flow into the recesses 15. Adjacent recesses 15 of a magnet sequence e.g. exhibit 50 toward the shaft axis a distance DF1. 11 mm amounts to.

Fig. 6e shows a cross section in Fig. 6a of represented rotor 1 along in Fig. 6d indicated cutting plane B-B. In the section uniform recesses 15 for the dipole magnets, distributed over the scope of the rotor 1, are to be recognized. Everyone of the recesses 15 visible in the section is a separate magnet sequence F1 associated. Related to the shaft axis 50 of the rotor 1 the recess 15 of a magnet sequence F1 is around the angle [delta] 1 opposite the recess 15 of an adjacent magnet sequence F1 rotated. In the present embodiment the angle [delta] amounts to = 20 degree. A dipole axle of a first recess 15 and a central longitudinal axis of a threaded hole 150, which flows to the first recess 15 adjacent recess 15 into one, include an angle [delta] 2, which amounts to in the present embodiment 25 degree.

Fig. 6f shows a cross section in Fig. 6a of represented rotor 1 along in Fig. 6d indicated cutting plane CC. Opposite in Fig. 6e represented section are the recesses 15 around an angle [delta] 1 around the shaft axis 50 twisted. Within a magnet sequence F1 adjacent dipole magnets are 8 thus regarding the shaft axis 50 around an angle [delta] 1 against each other twisted. In the present embodiment the angle [delta] amounts to 1 = 12 degree. Fig. 7a shows a plan view of a stator 2 with group-like arranged magnet sequences F2. Three magnet sequences F2 form in each case a group G.

Fig. 7b shows a view of on the left of in Fig. 7a of stator shown 2.

Fig. 7c shows a cross section in Fig. 7a of stator shown 2 along in Fig. 7a indicated cutting plane A-A. The recesses 22 to the receptacle of the cylindrical dipole magnets 8 are so formed that longitudinal central axis of the recesses 22, which are a group G the formed magnet sequences F2 associated and are in a vertical cutting plane arranged longitudinal to the shaft axis 50, are parallel to the cutting plane run and to each other parallel. The straight ones, which the shaft axis 50 cut and by the points run, in which, longitudinal in the cutting plane, longitudinal central axis of the recesses 22 break through the scope of the stator 2 a circumscribed cylinder, include with adjacent recesses of a group from magnet sequences an angle [xi]. In the present embodiment the angle [xi] has a value of 14.24 degree. The outer edges immediate adjacent recesses 22 e.g. exhibit a minimum distance 23. 1 mm amounted to can.

Fig. 7d shows a three-dimensional view in Fig. 7a of represented stator 2.

Fig. 8a shows a plan view of a stator 2 with group-like arranged magnet sequences F2. Three magnet sequences F2 form in each case a group G. Compared with in Fig. 7a shown stator 2 point with in Fig. 8a stator shown 2 a group G the formed magnet sequences F2 a larger distance from each other up.

Fig. 8b shows a view of on the left of in Fig. 8a of stator shown 2.

Fig. 8c shows a cross section in Fig. 8a of stator shown 2 along in Fig. 8a indicated cutting plane A-A. The recesses 22 to the receptacle of the cylindrical dipole magnets 8 are so formed that longitudinal central axis of the recesses 22, which are a group G the formed magnet sequences F2 associated and are in a vertical cutting plane arranged longitudinal to the shaft axis 50, include parallel to the cutting plane run and with one another an angle [phi] 1. In the present embodiment the angle [phi] has 1 a value of 28 degree. Immediate neighbors within the recesses 22, which are the same group G associated, are 22 from each other separate by a bar of the support body of the stator. The bar exhibits a width J on the scope of the stator 2, as in Fig. 8c outlines. In the present embodiment the width J has a value of 11, 94 mm.

Longitudinal central axis of the recesses 22, which are various groups G associated, 2 includes an angle [phi] at least with one another. In the present embodiment the angle [phi] has 2 a value of 64 degree.

Fig. 8d shows a three-dimensional view in Fig. 8a of represented stator 2.

Fig. 9a to 9h show in each case a development of the outer surface M1, M2 of a rotor 1 and/or. Stator 2. A magnet sequence is symbolized by an arrow. By the arrow direction a direction of a magnet sequence becomes defined. A direction of a magnet sequence is of importance, if the dipole magnets of the magnet sequence exhibit a characteristic polarity succession, which is direction-controlled. For the example it can be for the present invention of importance whether a magnet sequence with three dipole magnets exhibits the polarity SNN or the polarity NNS. The orientation of the outer surface M1, M2 is 50 defined by the indication of the shaft axis.

Fig. 9a shows a pitch angle of b = 10 degree of a magnet sequence, which begins at the left side of the outer surface. Fig. 9b shows a pitch angle of b = 80 degree of a magnet sequence, which begins at the left side of the outer surface. Fig. 9c shows a pitch angle of b = 280 degree of a magnet sequence, which begins at the right side of the outer surface. Fig. 9d shows a pitch angle of b = 350 degree of a magnet sequence, which begins at the right side of the outer surface. Fig. 9e shows a pitch angle of b = 10 degree of a magnet sequence, which begins at the left side of the outer surface. Fig. 9f shows a pitch angle of b = 80 degree of a magnet sequence, which begins at the left side of the outer surface. Fig. 9g shows a pitch angle of b = 280 degree of a magnet sequence, which begins at the right side of the outer surface. Fig. 9h shows a pitch angle of b = 350 degree of a magnet sequence, which begins at the right side of the outer surface.

Fig. 10 serves the illustration of the relationship between magnet sequences F1 and magnet rows 701 to 707 of a rotor 1. Fig. an outer surface M1 of a coaxial first circular cylinder Z1 oriented to the shaft 5 shows 10. The rotor 1 is coaxial 5 arranged to the shaft. The rotor 1 covers twenty-eight dipole magnets 7, which are on the outer surface M1 arranged.

The dipole magnets 7 of the rotor 1 are in four magnet sequences F1 with in each case seven dipole magnets 7 arranged. To the better discrimination the four magnet sequences F1 with the numbers in deep position of 1 to 4 than F1i to FI4 are durchnummeriert. The dipole magnets 7 of the magnet sequences F1 i to FI4 are so arranged and/or. formed that they sieve longitudinal series 701 to 707 with in each case four uniform dipole magnets 7 distributed on the scope of the first circular cylinder Z1 on the outer surface M1 train. The dipole magnets 7 of series 701 to 707 lie in a vertical plane longitudinal to the wave axle 50 of the shaft 5. The dipole magnets of 7 adjacent rows are against each other alternate so offset that they form axial to the shaft axis 50 a zigzag pattern uniform over the scope of the circular cylinder Z1. As example is the uniform zigzag pattern, which the dipole magnets 7 of the adjacent rows 703 and 704 train, in Fig. 10 with a fat line indicated.

Fig. a schematic representation of an apparatus according to invention, which exhibits an inner stator 2, a rotor 1 and an outside stator 3, points 11 the coaxial to a shaft axis 50 of a rotatable, rod-shaped shaft 5 arranged is. The cylindrical inner stator 2 exhibits in each case a circle-disc shaped end cap 13 with in each case a ball bearing 11 at its two ends. By means of these ball bearings 11 the inner stator is 2 coaxial 5 stored on the shaft. The shaft is in a typical embodiment from non magnetic material, e.g. Plastic, made and exhibits a diameter of 10 to 40 mm and a length from 100 to 400 mm. The inner stator 2 exhibits an inner stator core 12 and whereupon along the outer surface of the inner stator of 2 arranged magnets 8. The inner stator 2 is connected solid with a fastener 4, which in a mechanical housing to the receptacle of the apparatus (not shown) is arranged, by means of screw connections 10 and becomes in this way fixed held.

The rotor 1, existing from two mirror-image constructed rotor drums with in each case a pipe section and a circular disk, is 5 connected by means of screw connections 10 stationary with the shaft. Each of the rotor drums exhibits magnets 7. It concerns dipole magnets 7, whose magnetic dipole axles in to the shaft 5 vertical arranged planes run. Each of the rotor drums is by a hollow-cylindrical air gap of that radial inner stator 2 and by an annular air gap of the attachment disk, arranged within the rotor drums, 4 separate, which represents a plane of symmetry regarding the two rotor drums of the rotor 1. In a typical embodiment the annular air gap and the hollow-cylindrical air gap exhibit in each case a width from 3 to 50 mm. In the circular disks at the faces of the rotor drums likewise dipole magnets are 700 arranged.

The mass of the rotor 1 and the shaft 5 connected thereby is rotationally symmetrically distributed, so that with a rotation around the shaft axis 50 no imbalance arises.

The outside stator 3 consists of two separate annular halves (= stator rings), in each case with frame 9, magnets 6 and mounting elements to the attachment of the magnets 6. Everyone the frame consists of an hollow cylinder, at whose both faces in each case an annular disc arranged is. In this way each of the stator rings at its outside outer surface and at its two faces of one the frame 9 covered and to the shaft axis is 50 without frames, i.e. open. Within the frames 9 the magnets 6 are between the mounting elements. Each of the two stator rings in each case one of the two rotor drums of the rotor is 1 associated. Each of the stator rings is 1 separate by an annular air gap with a width from 3 to 50 mm of the radial rotor drums of the rotor arranged within the stator rings. The magnets arranged at the inside of the stator rings and the magnets 8 arranged at the outside of the rotor 1 thus direct face each other 6, only by the annular air gap from each other separate. Each of the stator rings can become parallel the shaft axis 50 shifted. It means that the relative position of the outside stator 3 and thus the coverage of the rotor can become 1 by the outside stator during the operation of the apparatus changed and adapted.

With the magnets it concerns 6, 7, 8 dipole magnets. In a prefered embodiment the dipole magnets are 6, 7, 8 as permanent magnets, e.g. existing from the Materialen SmCo and/or NdFeB, formed. It is however also possible that or the several dipole magnets are 6, 7, 8 formed as electromagnets. The magnetic flux density of the magnets 6, 7, 8 preferably lies in a range from 0,4 to 1, 4 tesla.

The frame is preferably from non magnetic material, e.g. Aluminium, made and exhibits a wall thickness from 2 to 10 mm.

Fig 12a shows out non magnetic material (e.g. Aluminium, copper) existing inner stator core 12 of the inner stator 2. The core 12 exhibits a circular cylinder 120, on its outer surface of bars and/or. Ribs 121 in form of a Strahlenkranzes arranged are. Everyone of the ribs 121 extended itself along the central axis of the circular cylinder 120 of the base of the cylinder 120 up to its top surface. The ribs 121 run regarding the central axis of the circular cylinder 120 radial and are uniform distributed over the cylinder extent. In this way 121 grooves develop and/or between the single ribs. Grooves 122. The circular cylinder 120 exhibits a circular bore along its central axis to the receptacle of the shaft 5. Both in the base and in the top surface of the cylinder 120 is in each case a disc shaped recess, is 11 partial arranged in which one of the ball bearings in each case.

The diameter of the stator core 12 amounts to 50 to 500 mm, its height of 100 to 300 mm. The width of the ribs 121 amounts to <= 100 mm and approx. 20 percent of the width of the grooves 122. Fig 12b shows a schematic representation of the inner stator 2. The inner stator 2 covers the inner stator core 12, the magnets 8 and the end caps 13. The same prolonged magnets 8, whose length dimension is smaller than those of the stator core a 12 selected, are in at the outer surface of the circular cylinder 120 along longitudinal grooves 122 inserted. Over the cylinder scope of the inner stator 2 considered is the arrangement of the magnets 8 like that that a first magnet is 8-1 flush with the base of the cylinder 120 final inserted, and which is residual magnets 8 with axial displacement V regarding the shaft axis 50 so arranged that on the outer surface of the inner stator 2 an uniform stair sample results. The axial displacement V is uniform like that over the length of the inner stator 2 divided that a last magnet 8-10 at its face with the top surface of the cylinder 120 locks. During the transition of the last magnet a large step W, whose length (never, exists to 8-10 to the first magnet 8-1) - the fachen displacement corresponds to V, if n indicates the number of the magnets 8. Both on the top surface and on the base of the cylinder 120 the inner stator 2 exhibits a disc shaped end cap 13, into their central axis one of the ball bearings 11 is in each case in each case.

The end caps 13 exhibit a diameter of 50 to 500 mm and an height from 5 to 20 mm. A typical length of the magnets 8, measured toward the shaft axis 50, amounts to 100 mm. The axial displacement V is variable, depending upon the number of the magnets. In a typical arrangement V amounts to approx. 5 percent of the length of the magnets 8.

Between the magnets 8 the outsides of the ribs 121 of the inner stator core 12 run. The dimensions of the magnets 8 and the inner stator core 12 are so one on the other tuned that the inner stator 2 exhibits an essentially uniform outer surface.

Fig 13 shows a development of the outer surface of the inner stator 2. On the outer surface ten magnets are 8 arranged, which exhibit the same geometry in each case. The magnets are more short toward the shaft axis 50 measured as the outer surface. A first magnet 8-1 is arranged with one of its front surfaces flush with the base 125 of the inner stator core 12 final on the outer surface. The residual nine magnets 8 are now toward the shaft axis 50 in uniform displacement V so arranged that the last magnet locks 8-10 with its right face flush with the top surface 126 of the inner stator core 12. In this way the treppenförmige arrangement of the magnets 8 represented in fig 13 results.

Fig 14 shows a section by the inner stator 2, along the cutting plane A-A indicated in the fig 12b. The inner stator core 12 exhibits an hollow cylinder 120, along its central axis the shaft 5 runs and at its outer surface along the ribs 121 run. The hollow cylinder 120 exhibits a diameter of 100 mm and a length of 170 mm. In the grooves formed between the ribs 121 magnets are 8 used, which exhibit a trapezoidal cross section in the cutting plane A-A. The dipole magnets 8 are so arranged that their magnetic dipole axle 80 within the represented cutting plane A-A runs. An angle [alpha], formed at the intersection of the magnetic dipole axle 80 magnets 8 and a tangent 81 to the inner stator 2 in the range magnets 8, knows values of 14 [deg.] to 90 [deg.] exhibit. In fig 14 illustrated case the angle [alpha] amounts to = 90 [deg.].

Fig 15a points the fastener 4 in a view vertical to Shaft axis 50. The fastener 4 exhibits an inner hollow cylinder 40 with smaller radius and an outside attachment annular disc 41 with larger radius. The inner hollow cylinders 40 and the outside attachment annular disc 41 are solid connected with one another. The hollow cylinder 40 serves the receptacle and attachment of the inner stator 2 by screw connections 10. The attachment annular disc 41 is solid connected with a mechanical housing (not shown) to the receptacle of the apparatus. The attachment annular disc 41 exhibits screw connections 10 on its outer periphery.

Fig 15b shows the fastener 4 in a view toward the shaft axis 50. The attachment annular disc 41 exhibits four screw connections 10 on its scope to the attachment at the mechanical housing, the hollow cylinder 40 exhibits over its scope a multiplicity of screw connections 10 to the attachment of the inner stator 2. Fig 16 shows a view of the rotor 1, which is 10 arranged stationary by means of screw connections on the shaft 5. The rotor 1 consists of two from each other separate arranged rotor drums, in whose outer surface circular bores are mounted, who serve 7 for the receptacle of the magnets. The rotor 1 does not consist of magnetic material (e.g. AI, cu). The distance of the rotor drums amounts to 15 mm to each other. The rotor drums exhibit an outside diameter of 165 mm, an height of 70 mm and a wall thickness of 26 mm. Each of the rotor drums exhibits a ringscheibenförmige top surface 102, in which two or more uniform on a circumference are regarding the center of the top surface 102 distributed dipole magnets 700 arranged. The magnetic dipole axle of these dipole magnets 700 runs parallel to the shaft axis 50.

Fig 17a shows a schematic view of one of the rotor drums of the rotor 1 and the inner stator 2, whereby the view is vertical to the shaft axis 50. The rotor 1 is 10 connected stationary by means of screw connections with the shaft 5. The shaft 5 is by means of a ball bearing of rotatable in the inner stator 2 stored. The rotor 1 surrounds the inner stator 2 trommelbzw. bell-shaped. The rotor 1 exhibits an hollow cylinder 101, which becomes 102 completed on of the inner stator 2 an opposite side by the top surface. There the inner stator 2 by the fastener 4 solid (= not rotatable) held becomes, the rotated rotor 1 with its hollow cylinder 101 around the inner stator 2. The hollow cylinder 101 of the rotor 1 is of the inner stator 2 by an annular air gap G1 separate. The hollow cylinder 101 of the rotor 1 exhibits bores, are 7 used into whom magnets. The top surface 102 of the rotor 1 exhibits likewise bores, are 700 used into whom magnets.

Fig. 17b points a schematic representation of the possible orientations of the dipole magnets 7 of the rotor 1 in a viewing direction parallel to the shaft axis 50. The magnetic dipole axle 70 of the rotor magnets 7 runs in a plane, which is vertical 50 arranged to the shaft axis, i.e. within the imaging plane. The angle ss between the magnetic dipole axle 70 and a tangent 71 to the outer periphery of the hollow cylinder 101 of the rotor 1 by the point, at which the dipole axle 70 breaks through the outer periphery of the hollow cylinder 101, knows values of 14 [deg.] to 90 [deg.] exhibit.

Fig 18a shows a development of the outer surfaces of the two drum halves of the rotor 1 along in Fig. 16 direction indicated XY. Fig 18a shows on the left of the left drum half and on the right of the right drum half, which is symmetrical formed to each other. The development extended itself along the direction x Y, like in fig 16 indicated. In vertical 50 planes arranged to the shaft axis run series 701 to 708 from magnets 7. Everyone of the series 701 to 708 is somewhat offset to an adjacent row, so that toward the shaft axis 50 a zigzag arrangement of the magnets 7 arises.

Fig 18b shows an enlarged cutout of the development of the magnets 7 represented in fig 18a. The centers of the magnets 7 within the series 705, 706 are in a constant distance f from each other. The distance between two adjacent rows 705, 706 is a so large selected that in fig the 18b illustrated arrangement with constant magnet distance D results. Two magnets 7051, 7052 in the series 705 are 706 so arranged that the centers of the three magnets 7051, regarding them an associated magnet 7061 in the adjacent row, 7052, 7061 stretch a gleichschenkeliges triangle with legs of the length D and a third side (base) of the length f. This relationship applies to all magnets 7 in all series 701 to 708. The magnets 7 cannot only, as shown, a circular cross section to exhibit, but also other forms, for example square or hexagonal.

The distance D lies in a range of approx. 3 mm up to 50 mm. Particularly prefered is a distance of 5 mm. The distance f lies in a range of approx. 10 mm up to 70 mm.

Fig 19a points a longitudinal section by the mechanical housing to the receptacle of the apparatus, i.e. a section parallel to the shaft axis 50. The mechanical housing covers the fastener 4 to the receptacle of the inner stator 2, guide means 19 to the guide of the slidable halves of the outside stator 3, as well as a transmission shaft 14 rotatable by means of a crank to the displacement of the halves of the outside stator 3 regarding the rotor and/or. inner stator. The transmission shaft 14 exhibits two threaded rods, which exhibit threads moving in opposite directions (Rechtsund left-hand thread) to each other. Thus the two halves of the outside stator 3 can become in symmetrical manner moving in opposite directions uniform moved to each other or apart. Those Guide means 19 sit on the transmission shaft 14 and regarding the fastener 4 outward or inward will in this way proceed. The frames 9 of the outside stator 3 are 19 solid connected with the guide means.

The mechanical housing exhibits an height from 400 to 600 mm, a width of 400 mm, and a depth of 530 mm.

Fig 19b shows a section by the outside stator 3, whereby the cutting plane vertical to the shaft axis 50 runs. The outside stator 3 exhibits annular arranged non magnetic mounting elements 18, between those magnets 6 arranged is. From reasons of clarity some the magnets 6 shown are only exemplary. The person skilled in the art it is clearer that the magnets are 6 over the whole circumference of the outside stator 3 arranged. The magnets 6 and the not magnetic mounting elements 18 are so dimensioned the fact that they result in an hollow cylinder, whose central axis toward the shaft axis 50 runs in the assembled state. The magnetic dipole axles 60 of the magnets 6 lie in planes, which run vertical to the shaft axis 50. An angle y between the magnetic dipole axle 60 and a tangent 61 to the outer periphery of the hollow-cylindrical outside stator 3 by the point, at which the magnetic dipole axle 60 breaks through the outer periphery, lies in a range of values of 14 [deg.] to 90 [deg.]. The outside stator 3 is 19 connected with the guide means, which are for their part 20 slidable stored on attachment columns.

Fig 20 points an oblique view of the mechanical housing to the receptacle of the apparatus. The mechanical housing exhibits a housing plate 21a, 21b, which is 20 connected by four attachment columns with one another at both faces ever. In the central plane between the two housing plates 21a, 21 b the attachment disk 4 is to the receptacle of the inner stator 2. In the centers of the housing plates 21a, 21b one bore each is for the execution of the shaft 5. On the four attachment columns 20 the guide means are 19, at which the halves of the outside stator are 3 fixed, slidable arranged. Likewise between the two housing plates 21a and 21 b the threaded shaft 14 (not shown) runs to the symmetrica Displacement of the guide means 19, and thus the halves of the outside stator 3 mounted on it.

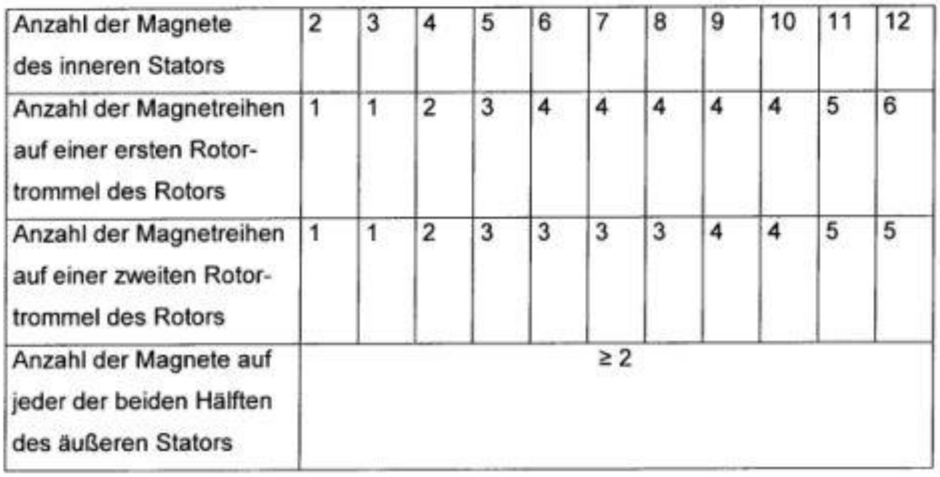
Fig 21 shows a scheme, which the relative disposition of the magnets 6 of the outside stator 3, which shows magnets 7 of the rotor 1 and the magnets 8 of the inner stator 2 in a prefered embodiment. The arrangement refers to a constellation, with which the two halves of the outside stator to each other are as far 3 as possible shifted. In the case of this constellation a complete coverage of the three described magnet-planar results. That north pole of the dipole magnets 6, 7, 8 is with the letter N, that south pole with the letter S indicated.

The air gap G1 between the outer periphery of the inner stator 2 and the inner periphery of the rotor 1, as well as the air gap G2 between the outer periphery of the rotor 1 and the inner periphery of the outside stator 3 can become in any range with a width from 3 to 50 mm selected.

Fig 22 points a schematic arrangement of the three magnet-planar 6, 7, 8 to the shaft axis 50 vertical in a cutting plane B-B, as in Fig. 11 indicated. In a prefered embodiment 2 uniform are over the outer periphery of the inner stator of 2 distributed ten magnets 8 on the inner stator. The magnets 6 point in the cutting plane B-B, i.e. vertical to the shaft axis 50, a trapezoidal cross section up. Each of the two rotor halves exhibits ever four series to sixteen magnets each 7, which exhibit a circular cross section in a cutting plane vertical to the their magnetic dipole axle. The outside stator 3 exhibits ever eighteen magnets 6 on each of its two halves, which are uniform over the scope each of the two stator halves of distributed. The magnets 6 exhibit a trapezoidal cross section in the cutting plane B-B. In Fig. 22 is a prefered orientation of the dipole magnets 6, 7, 8 shown. That north pole of the dipole magnets 6, 7, 8 is with the letter N, that south pole with the letter S indicated.

The ratio of the number of the magnets 8 of the inner stator 2, the number of the magnet rows on the two rotor drums of the rotor 1 and the number of the magnets 6 on the two stator halves of the outside stator 3 becomes a prefered selected indicated in table I as.

Table I



Anzahl der Magnete des inneren Stators	2	3	4	5	6	7	8	9	10	11	12
Anzahl der Magnetreihen auf einer ersten Rotor-trommel des Rotors	1	1	2	3	4	4	4	4	4	5	6
Anzahl der Magnetreihen auf einer zweiten Rotor-trommel des Rotors	1	1	2	3	3	3	3	4	4	5	5
Anzahl der Magnete auf jeder der beiden Hälften des äußeren Stators	≥ 2										

Tabelle I

Fig 23 shows particularly favourable dimensions of the used magnets.

Fig 23a shows a prefered dimension magnets 6 of the outside stator 3. The magnet 6 exhibits a length of 75 mm toward the shaft axis 50, the height of the trapezoidal cross section amounts to 50 mm. The baseline of the trapezoid exhibits a length of 25 mm and those the baseline opposite side a length of 20 mm.

Fig 23b shows a prefered dimension magnets 8 of the inner stator 2. The magnet 8 exhibits a length of 100 mm toward the shaft axis 50, the height of the trapezoidal cross section amounts to 25 mm. The baseline of the trapezoid exhibits a length of 25 mm and those the baseline opposite side a length of 10 mm.

Fig 23c shows a prefered embodiment magnets 7 of the rotor 1. The magnet 7 exhibits a circle-cylindrical geometry, whereby the magnetic dipole axis 70 with Mittelbzw. Longitudinal axis of the circular cylinder collapses. The cylinder exhibits an height of 20 mm and a diameter of 20 mm.

Concerning the dimensions of the magnets it is to be noted that with other favourable embodiments the indicated length specifications in a range of plus/minus 50 percent can vary. There is however also embodiments more conceivable, with which the dimensions of the magnets lie outside of this range.
Reference symbol list

1 rotor

2 stator, inner stator

3 outside stator

4 fastener, - disk

5 shaft

6 dipole magnets of the outside stator 3

7 dipole magnets of the rotor 1

8 dipole magnets (inner) of the stator 2

9 frames

10 screw connection

11 ball bearing

12 core of the inner stator 2 (= inner stator core)

13 end cap

14 transmission shaft

15 recesses of the rotor 1

16 groove

18 mounting elements

19 guide means

20 attachment columns

21a, 21 b housing plates

22 recesses of the stator 2

23 distance of the recesses 22

40 hollow cylinders

41 attachment annular disc

50 shaft axis

51 plane, vertical to the shaft axis 50

60 magnetic dipole axles of the dipole magnets 6

61 tangent

70 magnetic dipole axles of the dipole magnets 7

71 tangent

80 magnetic dipole axles of the dipole magnets 8

81 tangent of 101 hollow cylinders of the rotor 1

102 top surface of the rotor 1

120 circular cylinders of the inner stator core 12

121 ribs of the inner stator core 12,122 grooves of the inner stator core 12

125 base of the inner stator core 12

126 top surface of the inner stator core 12,150 threaded hole 511 first plane, vertical 50 512 second plane, vertical to the shaft axis, arranged to the shaft axis, 50 arranged

700 dipole magnets

701 - 708 series of magnets 7

A inclination angle b pitch angle b1 of first pitch angles b2 of second pitch angles

B16 width of the groove 16 C angle of attack D distance

D1A of outside diameters of the rotor 1

D11 of inner diameters of the rotor 1

DM6 distance

D15 diameter of the recesses 15 D16 outer diameters of the groove 16

D22 distance

E distance f distance

F1 first magnet sequences F2 second magnet sequences

G group of first magnet sequences F1 and/or. second magnet sequences F2

G1 air gap

G2 air gap

H height of J width k number of the first magnet sequences F1

M1 outer surface of the first circular cylinder Z1

M2 outer surface of the first circular cylinder Z2

M3 outer surface of the first circular cylinder Z3

M6 threaded hole

N north pole

P1, P2 of contact points

R2 radius

S south pole

TM6 depth of the threaded hole M6

T16 depth of the groove 16

T22 depth

U scope

V displacement

Z1 of first circular cylinders

Z2 of second circular cylinders

Z3 of third circular cylinders [alpha], ss, [gamma], [delta], [delta] 1, [delta] 2, [delta], [delta] 1, [lambda], [xi], [phi] angles

Rudolf G. ZINSSER

Kineto-Baric Force

(MEGA: Mechanical Energy from Gravitational Anisotropy)

***Planetary Association for Clean Energy (PACE) Newsletter* (December 1981)**

"Mechanical Energy from Anistropic Gravitational Fields"

by
Rudolf G. Zinsser

[Illustrations not incuded]

Matter may be temporarily turned into a state of anisotropy* in relation to the gravitational field by a novel physical process. A gravitation-like force emerges, the kineto-baric force.

(* Anisotropy refers to the exhibition of properties --- as velocity of light transmission, conductivity of heat or electricity, compressibility --- with different values when measured along axes in different directions)

For its generation, pulses of a hitherto unknown and non-electromagnetic "trigger energy" are fed into the substance of an activator whose gravitational characteristics are to be changed by "steps of activation". The trigger energy is gained from electromagnetic moving fields.

The direction of the feed-in determines the direction of the force. This kineto-baric force diminishes very slowly after a step to activation relative to the duration of the initiating pulse. Because of this feature, it is possible to accumulate the effects of a large number (up to 10^{10} have been measured) of activation steps into measurable and technically useful magnitudes.(15)

Empirically, no known interaction of activated matter with its surrounding has been determined. In this respect, the process appears to represent a new phenomenon. (1, 2, 3, 15)

Characteristics of the New Prime Mover

The phenomenon is accompanied with its own ratio: the mean kineto-baric force times its period of decay determines a motive impulse: the new prime mover.

The kineto-baric force accelerates freely movable, activated matter; such dynamic processes occur in an open physical system. The trigger energy itself does not contribute to the impulse gain. Rather, it produces the anisotropy of the gravitational field, causing an exchange of impulses between the immense store of baric** (mechanical tension) within the range of effectiveness of geometrodynamics (7) and mechanical events in our habitual mass distribution. Experimental investigations reveal a gain-of-impulse-to-energy ratio whose value surpasses the values of conventional propulsion methods by several powers of ten. (1, 3)

(** Related to gravitational actions)

The No-Common-Center-Of-Gravity Principle

The mechanical effects run in physical systems ("Y-Systems") whose range of effectiveness is foreign to conventional knowledge. Within Y-systems, Newton's Principle of Action and Reaction is still valid, but there is no definable common center of gravity between both reaction partners of the dynamic processes. One of them is the activated matter which can be attributed with a center of gravity in the usual manner. The other one --- conventionally labeled as reaction-mass --- is the local origin of the gravitational moving orders (for mass) which cannot be attributed with a center of gravity by definition. There are several well known mathematical "pictures", for example "the guide-field property of space", the "the density- and pressure-gradients" in the hydrodynamic presentation, or "the locally altered geometry of space". (6, 7, 10, 12)

Common to them is that the notion of natural lengths is not applicable, thus no localized center of gravity can be defined: within a Y-system the center-of-gravity law cannot be employed, thus the laws of impulse and energy with respect to the = "related to gravitational actions" trigger energy lose their physical realities as they are based on the assumption the center-of-gravity law is applicable; neither can energy be defined as force times distance traveled under the action of that force, nor as kinetic or heat energy as the latter is kinetic energy of the random motion of molecules. Kinetic energy implies a differentiation of lengths, hence this notion is not applicable. Only the above-mentioned baric tension exists in Y-systems. With "normal" gravitation it is in an isotropic state; no energy can be derived.

In contrast, energy can be produced from gravitational fields in the anisotropic state of activated matter.

As there are no natural lengths in Y-systems, it follows that velocity relative to any inertial system does not enter into the balance of trigger energy of activated matter.

Furthermore, the reaction "mass" (the guide-field property of space, etc.) cannot absorb kinetic energy as compared with jet propulsion where the jet carries away most of the fuel's energy, most of it in the form of kinetic energy, then heat and noise.

Gaining Energy from Redistributions of Mass

How does the gain of energy come about in the mass-distribution? This "mental experiment" may explain:

Let the origin of a coordinate system be anchored in a force-free particle and the matter to be activated be within that inertial system. Now an activation step is applied; a Y-system arises. The impulse emerging from it accelerates the activated matter during the period of decay; a gain velocity XXX occurs in the initial system but not in the Y-system as explained above. The Y-system ceases to exist at the end of the decline, and no dynamic record survives. A second step of activation is applied, a new Y-system arises which accelerates the activated matter, adding a further XXX during its decay. The velocity is now 2 XXX. When *n* activation steps have been applied, *n* independent Y-systems have acted one after another; the velocity in the inertial system rises to *n* XXX. Obviously, the kinetic energy grows by the square of *n*. Let E be the trigger energy used up for each step of activation. Then it is true that the kinetic energy in the initial system grown Ek = *n*2E, while the input of trigger energy was *n*E. Hence the energy gain = *n*(*n*E-E). With a typical repetition rate r = 40 Mc of the activation steps it is easy to see that the gain --- which is derived from the range of effectiveness of geometrodynamics --- surpasses the input by may powers of ten.

Key for Practical Applications

Suitable physical measures permit the application of activation steps at a high repetition rate, and let a large number of Y-systems act separately (just as in the mental experiment) yet simultaneously. Thus a similar gain of impulse and energy can be obtained in a much shorter space of time while the force component of the impulse-gain rises to measurable and finally technically useful magnitudes of accumulation. (15)

Experimental Results

A main difficulty has been reproducibility as not all the physical parameters were recognized or obvious. Most activators had a mass between 200 gr and 500 gr. The mass affected by primary activation was between estimated 5 and 50 mg. Stored impulses of 10^4 to 10^5 dyne-sec had been observed with a useful effect of 6 Newton-sec per Watt-sec of energy. On some occasions 10^6 and more dyne-sec with force components of 100 dyne to over one pond were observed. (1, 2, 3, 15)

Why was it so difficult to reproduce primary force components of more that 2 to 4 dyne? During the last 10 years or so, primary activation was done with relatively crude apparatus whose continuous systematic development would literally require a team of unavailable technicians and scientists. On the other hand, the art of measurement was intensively developed and tested over a period of several years. The specially devised and developed bifilar torsion and strip suspended balances (no static friction when standing still) proved to be fully reliable. In this way it was ascertained that the experimenter is not misled by "dirt-effects". The measured value to dead weight ratio is of the order of 10^{-6}. Balances with these properties are not commercially available.

Propulsion Applications

1) Replacement of ion or plasma drives ~ Force components of the impulse of between 1 and 5 pounds as observed during exploratory experiments suggest an early application for replacement of existing ion or plasma drives, and/or those which are in the stage of development. Ion or plasma drives are intended to "spiral" telecommunication satellites from a low (and fuel-saving) parking orbit into a geostationary one some 36,000 km up. This procedure saves a lot of fuel as the power for the "electric" drive is taken from solar cells over a long period of time. The payload can be increased accordingly.

MEGA-propulsion is superior: electric energy requirements would be down to about 1% as observed during experiments. If larger force parameters were employed the time taken would be cut accordingly. Furthermore, no reaction mass such as mercury is required. Hence the new propulsion units could be operational for indefinite periods, in contrast to ion or plasma drives whose operation life is limited by the reaction mass.

2) Assistance to jet propulsion of planes ~ An increase of the force parameter could be envisaged in the form of hybrid propulsion saving over 75% of the fuel in jets. The relatively small advantage compared with example (1) is due to the need for directional maneuverability of the force component within, say 30 sec. This demands its correspondingly fast decline. To maintain the required thrust more trigger energy has to be used up, yet still at powers of ten less than with conventional drives.

3) Interplanetary space travel ~ The working hypothesis or theory of the propulsion had been evolved before experimental work began in the early 1950s and permitted the prediction of the primary effects --- the new prime mover --- within tolerable quantitative limits. This success suggests that further extrapolations are permissible. An example, in interplanetary space travel: for a return flight, Jupiter-Ganymede, the mass ratio of fuel + oxidizer to fully equipped ship with crew can be smaller than 7:1. Powered flight throughout with 1 g (earth) acceleration, hence no weightlessness. On reaching halfway, change to deceleration, once again with 1 g. One-way travel time of about 7 days depending on the relative positions of the planets. No ballistic flight path, almost proceeding in a straight line. Return to Earth in a similar fashion, hovering at low speed back into atmosphere. No reentry heat problem.

Transfer and Call-Off Effects

Activated matter transfers neutral matter of any kind in its vicinity more or less quickly into a state of anisotropy. The speed of the process depends upon the magnitude of anisotropy of the originally activated matter and its proximity. The transfer effect may be termed secondary activation, or for short, "infection effect".

Call-off effects from activated or infected matter: impulses of 10^4, 10^5 and more dyne-sec can be called by known, other one by still unexplained, stimuli.

Tiny accelerations which cannot be registered by neutral measuring arrangements (as the latter's sensitivity is a few powers of ten too small) cause random mechanical unrest of the force indicating parts. The unrest can be called by tiny movements of air in the casings of the balances or even the impulsive force of the movement of single air molecules. Provisionally considered, the unrest has nuisance value for the art of mensurating. With force components of the impulse smaller than, say 5 dynes it is difficult to distinguish between call-off and primary effects. The unrest has been observed over a period far longer than one year with power off.

On the other hand, the movements of the balance is converted into heat by the brakes (damping) of the balances) One can compute the flow of energy into the brakes: it is several powers of ten higher than had been spent for the primary activation even over a relative short period of observation of a few months. (4)

It appears to be possible to control and optimize the energy gain by artificial mechanical stimulation in vacuo.

Measurements revealed horizontal accelerations of less than 10^{-7} g (gravitational acceleration) can cause significant effects as observed on bifilar torsion balances.

The component of unrest which is stimulated by tiny air movements could not be observed in a high-vacuum chamber, according to expectations. (4)

The Unclarified "Come-In" Effect

When persons who were present during a primary activation of the converter under observation approach the arrangement after a sufficiently long period of absence, an impulse of similar value as above is released. When persons who were not present during the primary activation approach the balance without the experimenter, no effects are observed.

The come-in effect appeared also when the setup was placed inside a high-vacuum chamber. (14)

For a possible interpretation it is suggested: with the primary activation a certain baric pattern may have arisen and stored partly by the activated matter and partly by the mass of the experimenter. When reapproaching, the similarity of both pattern could perhaps be "Recognized" and trigger the effect. It is strange, however, that with inorganic matter such as a transformer plus metal ballast, or furniture of similar mass as a man and under similar circumstances the effect could not be repeated so far.

EM Triggering

Tiny electromagnetic spherics of natural or artificial origins can also trigger impulses of similar high frequency signals which by theory and experimental experience cannot cause primary activations.

Periodicities

Effects with a periodicity of approximately 24 hrs and with different periodicities.

The stimulant is also not clarified. The observed force component of the impulses measure between 3 and 10 dynes, and last for about one to several hours. One particularly interesting sequence of periodic effects was registered during 4 days, from Nov. 8 to Nov. 11, 1979 when it disappeared into the background unrest. Its periodicity was about 24 hr 20 min, and thus not pointing towards the sidereal day. Other records indicate a period of slightly less than 24 hr and give food for thought. Further periodicities were 18 hr and 36 hr. (3, 15)

Effects producing Large Impulsive Forces

There are strong indications that part of the unrest is composed of random sequences of large impulsive forces alternating in the directional orientation. It is estimated that the force component amounts to about 10 Newton with a duration of less than 1 millisecond. With specially developed recording equipment records could be taken which suggest that the force component could even be in the range of 10 Newton, and the duration shorter than 10 -4 seconds.

Known radiations could not be detected so far. However, a biological action-at-a-distance acting through the walls of sealed containers could be proved.

Biological Effects

Germination of plant seed is speeded up, yet pursuant growth is retarded. The rate of cell divisions is diminished.

No negative effects on plants, animals (mice during a "pattern screening") nor on the experimenter have been observed in over 26 years of experimenting.

References

1) Peschka, W.: "Kinetobarische Effeckte als mogliche basis fur neuartige Antriebsprinzipien" *Raumfahrtforschung* 2 (1974).
2) Peschka, W.: "Kinetobarische Effeckte -- ein neues Phanomen?"; *Umschau* 75 (5): 152.
3) Peschka, W.: "Kinetobarische Effeckte als mogliche basis fur neuartige Antriebsprinzipien"; internal communication, *Berichte* at the DFVLR (Aug. 31, 1973).
4) Peschka, W.: During a lecture at Univ. Munchen (Feb. 29, 1980).
5) Sanger, E.: *Raumfahrt*: ECON-Verlag, Duseldorf-Vienna (1964).
6) Taylr. E. & Wheeler, J.: *Spacetime Physics*: Freeman & Co., SF (1966).
7) Wheeler, J: *Einstein's Vision*; Springer, NY (1968).
8) Rosenfeld, L.: *Physik* 5: 113 (1930); *Zeit. Physik* 65: 589 (1930); Bergman, *et al*., *Phys. Rev.* 78: 329 (1950); Pirani, F. & Schild: *Phys. Rev.* 79: 986 (1950); DeWitt, S.: *Dynamical Theory of Groups & Fields in Relativity, Groups & Topology*; Gordon & Breach, NY (1964).
9) Higs, et al.: "The Dynamics of General Relativity" in Witten: *Gravitation: An Introduction to Current Research*; Wiley & Sons, NY (1962).
10) Vittie, G.: *General Relativity & Cosmology*; Chapman & hall (1956).
11) Born, M.: *Einstein's Theory of Relativity*; NY (1962).
12) Dennen, H.: "Die Relativitats Theorie"; *Umschau* 6: 162 (1980).
13) Saxl, E. & Allan, M.: 1970 "Solar Eclipse": *Physical Review-D* (15 Feb. 1971).

14) Senkowski, E.: personal communication.
15) Zinsser, R.: "Energie aus einer neuen regenerativen Quelle?"; unpublished ms (180).

US Patent 4,085,384

(April 18, 1978)

Circuit for producing pulses by differentiating output of sawtooth oscillator

Rudolf G. Zinsser

Abstract -- The generator produces a pulse train with a given pulse duty factor and a relatively small pulse width, and comprises an oscillator including a resonance circuit having multiple frequencies and tuned to the fundamental frequency corresponding to the pulse repetition rate and to at least the first and second harmonics of the fundamental frequency. On the output side, there is generated a sawtooth wave with a steep leading edge having an inflexion point. Differentiation members couple the resonance circuit to a load so that, as a result of matched differentiation of the steep leading edge of each sawtooth of the wave, a pulse, having a pulse width corresponding approximately to the pulse time of the leading edge, acts on the load.

Inventors: Zinsser; Rudolf G. (Idar-Oberstein, DT)
Assignee: Reuter Technologie GmbH (Am Rauhen Berge, DT)

Current U.S. Class: 331/74; 327/304; 331/168
Intern'l Class: H03B 005/10; H03K 005/01; H03K 006/06
Field of Search: 331/74-77,117 R,167-171 328/59,60,28,66-68,34,36 307/261

References Cited: U.S. Patent 2,461,321, Feb., 1949; Guillemin 328/59; USP 3,508,157, Apr., 1970; Mobley 328/66.

Figure 1

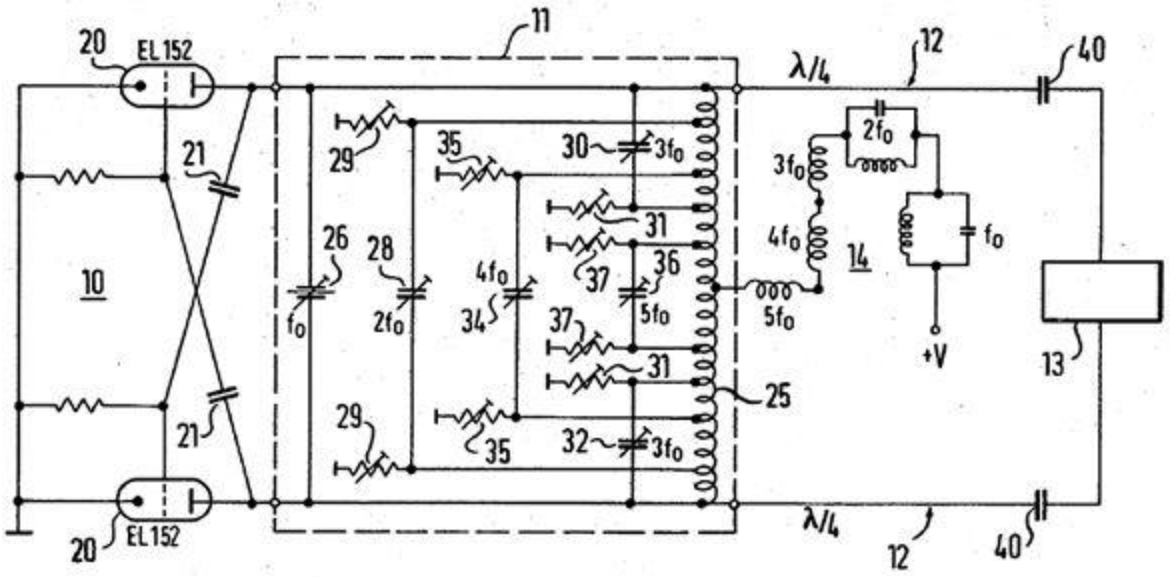


Figure 2

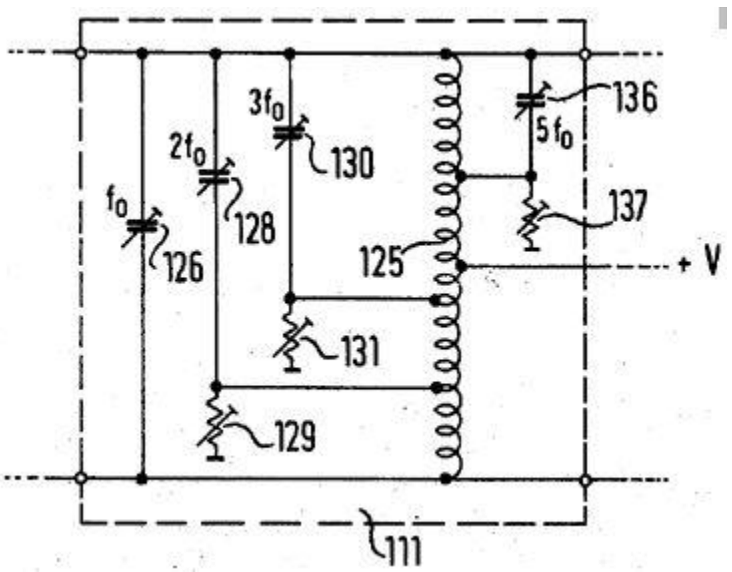
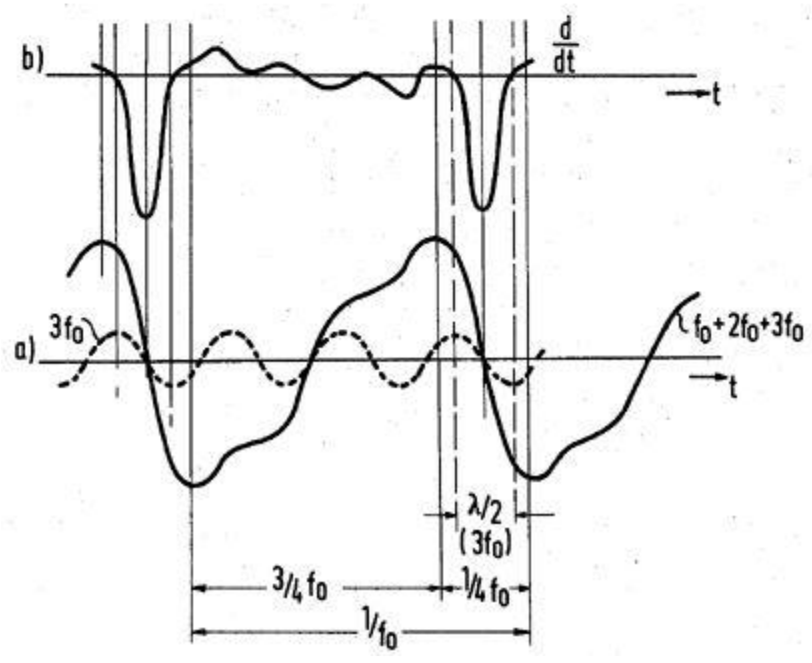


Figure 3



Claims [Not included here]

Description

FIELD & BACKGROUND OF THE INVENTION:

The invention relates to a pulse generator for producing a pulse train with a given pulse duty factor and a relatively small pulse width.

Pulse generators for producing pulse trains are known in manifold designs. In pulse generators of this type, the steepness of the pulses is determined by the upper limiting frequency of the active elements. When the upper limiting frequency is reached, the amplification becomes smaller than 1 so that the oscillator in the pulse generator ceases to oscillate when the limiting frequency is exceeded. For the manufacture of pulse generators with very short pulses and very steep edges, it is therefore necessary to provide active elements which have an upper limiting frequency which is above the component frequencies determining the steep edges. The development and the manufacture of active elements of this type for high frequencies in the megahertz or gigahertz range are very involved and cost-intensive. It is thus desirable to provide a pulse generator which can be operated with active elements, the upper limiting frequency of which is very much lower than the highest component frequencies determining the steep edges. It is immaterial here whether thermionic tubes or semi-conductor devices are used as the active elements in the oscillator part of the pulse generator.

SUMMARY OF THE INVENTION:

According to the invention, this object is achieved by an oscillator comprising a resonant circuit which has multiple resonances and which is tuned to the fundamental frequency of the oscillator and to at least the first and second harmonics and, if appropriate, to higher harmonics in such a way that, on the output side, a saw-tooth wave is generated, each steep leading edge of which has an inflexion point, and by coupling the resonant circuit via differentiation members to a load in such a way that, as a result of appropriate differentiation of the steep leading edge of the particular saw-tooth, a pulse with a pulse width corresponding approximately to the pulse time of the leading edge acts on the load.

A development of the invention provides that the amplitude of the highest harmonic, determing the pulse width, is substantially smaller, and preferably about 1/4 or 1/6 and less, than the amplitude of the fundamental frequency determining the pulse repetition rate, and that the intermediate lower harmonics have an amplitude which is smaller than that of the fundamental frequency and which also decreases to the value of the highest harmonic as the ordinal number of the harmonic increases. However, it is also provided that the amplitude of the higher harmonic, determining the pulse width, is substantially smaller, and preferably about 1/4 or 1/6 and less, than the amplitude of the fundamental frequency determining the pulse repetition rate, and that the lower intermediate harmonics have an amplitude which is equal to the amplitude of the highest harmonics.

It is already known that a saw-tooth wave with a linear rise can be resolved into an infinite series of sinusoidal waves. For the present invention, however, only a limited smaller number of harmonics is necessary, the particular highest harmonic together with the fundamental frequency determining the pulse duty factor of the pulse train. The amplitudes of the fundamental frequency and of the individual harmonics can be in a mutual relationship, such as can be derived for the corresponding component waves by a Fourier analysis of a saw-tooth. However, it is by no means necessary that these amplitude relationships apply. Rather, a multiplicity of alternative amplitude relationships can be used and it has been found that it is sufficient for optimum operation if the amplitudes of the harmonics each are 1/4 and less than the amplitude of the fundamental frequency. Neither is it necessary that all the harmonics between the fundamental frequency and the highest harmonic are utilized, as will be explained in more detail in the following text.

The pulse generator according to the invention has the advantage that it enables a pulse train of very short and steep as well as powerful pulses to be generated at a relatively high pulse repetition rate. For the pulse generator, it is thus possible to use powerful active elements which have a relatively low upper limiting frequency and which hence ensure reliable operation of the pulse generator. It is a further advantage of the pulse generator that the pulse amplitude and hence the power are mainly derived from the fundamental frequency, while the harmonic oscillations in the main only contribute to the steepness of the pulse edges, the highest harmonic determining the pulse width and hence, in cooperation with the fundamental frequency, the pulse duty factor.

According to a further development of the invention, it is also provided that the oscillator circuit is connected to a supply voltage via band stop filters which are connected in series and which have a high transfer resistance for the base frequency and for the particular frequencies of the harmonics. In this way, the draining of energy, associated with individual frequencies, from the multiple resonant circuit is avoided, and this is important for optimizing the operation of the pulse generator.

BRIEF DESCRIPTION OF THE DRAWING:

The features and advantages of the invention can also be seen from the description which follows of illustrative embodiments, in conjunction with the claims and the drawing in which:

FIG. 1 is a circuit diagram of a pulse generator according to the invention in a diagrammatical representation;

FIG. 2 is a circuit diagram of a further embodiment of the multiple resonance circuit, such as can be used in the circuit according to FIG. 1; and

FIG. 3 is a graphical representation of a saw-tooth wave and the pulses derived therefrom, in order to illustrate the mode of action of the invention.

DESCRIPTION OF THE PREFERRED EMBODIMENTS:

FIG. 1 shows the circuit diagram of a pulse generator which consists of a push-pull oscillator 10 with a multiple resonant circuit 11 and a circuit 12 which couples it to a load 13. The oscillator part of the pulse generator is connected to the supply voltage +V via a chain 14 of filters.

With the exception of the multiple resonant circuit 11, the oscillator circuit is constructed in the conventional manner as a push-pull oscillator, the illustrative embodiment described operating with two thermionic tubes 20 which feed back crosswise from the anode to the grid via coupling capacitors 21 in such a way that the tubes are operating with high gain. This part of the oscillator circuit can be built up in any desired manner as long as, in cooperation with the multiple resonant circuit 11, it results in an oscillator circuit. The active elements used here will be those which have an upper limiting frequency above the frequency of the fundamental. In the type EL 152 tubes used in the illustrative embodiment, the upper limiting frequency is about 120 MHz, whilst the pulse repetition rate generated by the pulse generator is about 45 MHz, the fifth and higher harmonics being utilized depending on the design of the multiple resonant circuit 11. It is also not necessary that the active elements consist of tubes. Rather, semi-conductor elements can also be used in their place.

The multiple resonant circuit 11 of the oscillator circuit is built up in such a way that it consists of a multiplicity of resonant circuits, each of which is tuned to particular frequencies. These are the fundamental frequency which determines the pulse repetition rate and the harmonics associated with this fundamental frequency.

In FIG. 1, the multiple resonant circuit is built up symmetrically and comprises an inductance 25 to which a capacitor 26 is connected in parallel. These two elements are tuned to the fundamental frequency f_o. A secondary resonant circuit which is tuned to the second harmonic $2f_o$ comprises a part of the inductance 25 and a capacitor 28. Attenuators 29 are connected to this secondary resonant circuit in order to adjust the amplitude of the second harmonic to a value which is smaller than the amplitude of the fundamental frequency.

The secondary resonant circuit for the third harmonic $3f_o$ is sub-divided and comprises the capacitors 30 and 32, each of which is connected in parallel to a respective end section of the inductance 25. This secondary resonant circuit is also attenuated with the aid of attenuators 31 in order to adjust the amplitude to a value which is smaller than that of the fundamental frequency.

The secondary resonant circuits for the fourth and fifth harmonics $4f_o$ and $5f_o$ comprise a capacitor 34 or a capacitor 36, respectively, which are connected in parallel to a respective section, corresponding to the harmonic, of the inductance 25. These secondary resonant circuits are also connected to attenuators 35 or 37 respectively. The individual attenuators of the secondary resonant circuits can be designed in the customary manner and can consist, for example, of adjustable ohmic resistances which are connected in the customary manner to the associated secondary resonant circuit.

The ratio of the amplitude of the harmonics, the magnitude of which has been adjusted by the attenuators, to the amplitude of the fundamental frequency does not have to follow any particular set pattern. However, since the fundamental frequency in the main determines the pulse power of the pulse generator and the harmonics in the main only have an influence on the shape of the pulse, that is to say the steepness of the edge, the fundamental frequency must have the largest possible amplitude value, whilst it suffices if the harmonics have an amplitude of 1/4 and less. In an actual circuit, good results could be obtained using the following functional relationship:

$A(f_o)$; $A/4(2f_o)$; $A/4(3f_o)$; $A/4(4f_o)$; $A/4(5f_o)$

Other amplitude ratios, with the amplitude decreasing as the order of the harmonics increases, have also given satisfactory results.

As already mentioned, the amplitude of the harmonics primarily affects the steepness of the edge and in particular the trailing edge of the pulse. The steepness of the latter is completely independent of the limiting frequency or the characteristic properties of the active element.

The pulse duty factor of the pulse train is determined by the highest harmonic which is used, since the latter determines the pulse width, as will be explained in more detail later by reference to FIG. 3.

According to FIG. 1, the oscillator circuit is connected to the load 13 via the coupling circuit 12. This coupling circuit consists in each case of a quarter-wave line which is connected to the decoupling taps of the inductance 25 and joins the differentiation capacitors 40 to the multiple resonant circuit 11. These differentiation capacitors are of an order of magnitude of about 1 to 5 pF when the pulse repetition rates are of an order of magnitude of about 45 MHz and at least the fifth harmonic is used.

The saw-tooth potential applied via the quarter-wave lines is differentiated by these differentiation capacitors 40 so that the pulses derived from the saw-tooth by the differentiation come to act on the load 13. For optimum operation it is advantageous if there is matching between the multiple resonant circuit 11 and the load 13, but satisfactory pulses can still be produced even in the case of mismatching.

FIG. 2 shows a further embodiment of a multiple resonant circuit 111 which can be used in place of the multiple circuit 11 in the circuit according to FIG. 1. This multiple resonant circuit 111 is built up asymmetrically and differs from the embodiment according to FIG. 1 in that the secondary resonant circuit tuned to the harmonic $4f_o$ is lacking. This results in a saw-tooth wave which has a somewhat modified shape but from which the same pulse repetition rate and the same pulse duty factor as in the embodiment according to FIG. 1 are derived if the same frequency of the fundamental is used. The elements corresponding to the build-up of the multiple resonant circuit 111 are characterized in FIG. 2 by corresponding reference numerals augmented by the value 100.

For satisfactory operation of the pulse generator, it is also necessary, in the embodiment according to FIG. 2, that the amplitudes of the harmonics are reduced relative to the fundamental frequency. The same amplitude relationships as mentioned in connection with FIG. 1 can be used. In an actual circuit build-up, the following amplitude relationship was provided and used very successfully:

A(f_o); A/.sqroot.2($2f_o$); A/2 ($3f_o$); A/4 ($5f_o$)

Of course, satisfactory results are also obtained with many other relationships which differ from the amplitude relationship indicated, since, as already mentioned, the harmonics make only a minor contribution to the total power of the generated pulse train, the energy of which is in the main derived from the fundamental frequency.

The asymmetrical build-up of the multiple resonant circuit 111 according to FIG. 2 has an advantage because the spacially different couplings of the capacitors, associated with the individual secondary resonant circuits, to the inductance 125 facilitate the adjustment of the relative phase position of the secondary oscillations and hence facilitate the tuning of the multiple resonant circuit. The most favorable conditions are established when the relative phase angle of the individual secondary oscillations is 0.

In such a pulse generator, built up in accordance with the examples illustrated, pulses with a peak-to-peak amplitude of 400 V could be generated using type EL 152 tubes, the frequency of the fundamental being about 45 MHz. As will be explained in more detail in the following text, the pulse duration is derived from half the period of the highest harmonic. However, pulses with peak-to-peak amplitudes between 600 V and 800 V and a pulse width of 2.5 nanoseconds are also possible using the same tubes. At lower powers, it is also possible to generate pulses with a pulse width of about 0.5 nanoseconds.

In order to explain the pulse generator circuit, reference is made to FIG. 3 which, in part a), shows a saw-tooth oscillation which is built up from a base oscillation with the frequency f_o and also the second harmonic with the frequency $2f_o$ and the third harmonic with the frequency $3f_o$. On top of the time axis, the third harmonic $3f_o$ is drawn in dotted lines with the relative phase position 0. This representation clearly shows that the superposition of the second and third harmonics on to the fundamental frequency already leads to a saw-tooth wave which has a leading edge with markedly steeper and markedly flatter slopes. In the region of the steep leading edge, the saw-tooth wave has an inflexion point which preferably lies approximately in the middle of the steep leading edge. By differentiating this saw-tooth oscillation with the aid of the differentiation capacitor 40 according to FIG. 1, a curve of potential is obtained, such as can be seen from the diagram b), which makes it possible to see that the differentiation of the steeper leading edge with the inflexion point produces a pulse, the pulse duration of which depends on half the period of the highest harmonic $3f_o$ used. In building up the saw-tooth wave from a fundamental frequency and higher harmonics, the steepness of the steep edge can be further increased and the pulse duration can thus be further reduced, the pulse duration resulting, as mentioned, from half the period of the highest harmonic (for consistency).

If, as compared with the mode of representation according to FIG. 1, a modified build-up of the multiple resonant circuit is used, either by omitting the secondary resonant circuit with the fourth harmonic or by adding further secondary resonant circuits with higher harmonics, the chain 14 of band stop filters must be adapted correspondingly and, in the band stop filters connected in series, a band stop filter tuned to the missing harmonic (consistency) must be omitted or, respectively, when further secondary resonant circuits are added, band stop filters must be added which are tuned to the frequency of the corresponding harmonics.

In the preceding text, a pulse generator has been described which, with different types of build-up, is suitable for generating pulses of very short duration at a relatively high repetition rate, it being possible for the uppermost limiting frequency of the active elements in the oscillator circuit to be substantially lower than the component frequencies corresponding to the steepness of the edge of the pulses. By an appropriate design of the multiple resonant circuits it is possible to vary the pulse duty factor for a given pulse repetition rate and to create pulses with a very small pulse width. The pulse generator according to the invention is very stable with respect to the pulse repetition rate and to the set pulse duty factor and, in the case of a sufficiently high power of the fundamental frequency, also yields powerful pulses.

"Kinetobarische Effekte als mögliche Basis für neuartige Antriebsprinzipien"

von
W.Peschka
(DFVLR Institut für Energiewandlung und elektrische Antriebe, Stuttgart)

Zeitschrift Raumfahrtforschung 2: 66-72 (1974)

Inhalt ~

1. Einleitung
2. Prinzip des Experimentes
3. Beschreibung der Drehwaage und der Meßanordnung

4. Durchgeführte Versuchsarbeit
5. Versuchsergebnisse
6. Folgerungen hinsichtlich dynamischer Wirkungen
7. Folgerungen im Hinblick auf neuartige Informationsübertragung
8. Zukünftiges Programm
9. Zusammenfassung

---

1. Einleitung

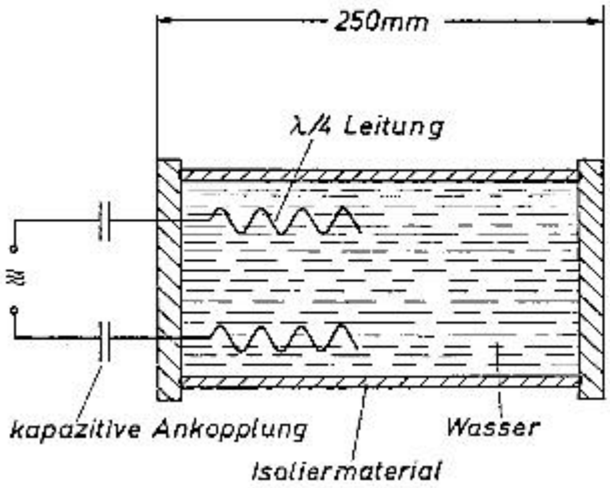
Im folgenden wird über Versuchsergebnisse berichtet, deren experimenteller Befund völlig eindeutig ist, deren Erklärung bzw. Zurückführung auf bekannte Phänomene bisher nicht gelungen ist. Der Gedanke und die Ausführung derartiger Untersuchungen stammen ursprünglich von R.G. Zinsser), der im Laufe zehnjähriger sorgfältiger experimenteller Arbeiten bemerkenswerte Ergebnisse erzielt hat. Dabei soll das Auftreten dynamischer Effekte also Kraftwirkungen an entsprechenden Proben festgestellt worden sein. Wir wurden gebeten, eine experimentelle Prüfung dieses Sachverhaltes durchzuführen.

Zunächst erschien die experimentelle Prüfung relativ einfach. Im Verlauf der Arbeiten zeigte es sich jedoch, daß die Ausschaltung äußerer Störeinflüsse derartig schwierig war, daß nunmehr erst nach drei Jahren Arbeit diese dynamischen Effekte als gesichert gelten können. Hierbei handelt es sich im wesentlichen um statistische Aussagen aufgrund von Auswertungen anhand einer großen Anzahl durchgeführter Versuche. Die Aussicht, hier möglicherweise einem neuen Phänomen, welches bisher unbekannte Kraftwirkungen auf Körper ausüben kann, gegenüber zu stehen was Anwendungen in der Raumfahrt denkbar machen könnte -, bot Anlaß und Berechtigung, diese Arbeiten in entsprechendem Rahmen, zumindest bis zur Klärung des weiteren experimentellen Tatbestandes, fortzuführen.

2. Prinzip des Experimentes

Es wurden Proben benützt, die im wesentlichen Schwingkreiselemente, also Induktivitäten und Kapazitäten, oder aber hochfrequente Leitungsbauelemente wie beispielsweise Viertelwellenleitungen darstellen (Bild 1). Diese Schwingkreise bzw. Leitungsbauelemente befinden sich in Wasser (Leitungswasser oder entsalztes Wasser). Diese Anordnung bildet mit dem dazu gehörigen Behälter als Isoliermaterial die Probe. Es zeigte sich, daß hierbei nicht ausschließlich Wasser zur Erzielung dieser Effekte erforderlich ist. Der Vorteil in der Verwendung von Wasser liegt in seiner großen Dielektrizitätskonstante, wodurch relativ kleine Abmessungen der Proben unter Berücksichtigung der zur Verwendung gelangenden Frequenzen und Wellenlängen möglich werden. Neben anderen Erscheinungen, auf welche in diesem Rahmen nicht eingegangen werden kann, zeigen diese Proben nun bei induktiver oder kapazitiver Einkopplung von Hochfrequenzenergie dynamische Wirkungen. Die Proben unterliegen also Kraftwirkungen. Zum Nachweis derartiger dynamischer Wirkungen, die bei unseren Versuchen relativ klein waren (Kräfte im Gebiet von 1 bis 10 dyn), wird die Probe auf einer Drehwaage entsprechender Empfindlichkeit gelagert. Diese Versuchsanordnung wurde nicht von uns entwickelt, sondern in wesentlich verbesserter Form übernommen.

Bild 1: Prinzip der verwendeten Proben

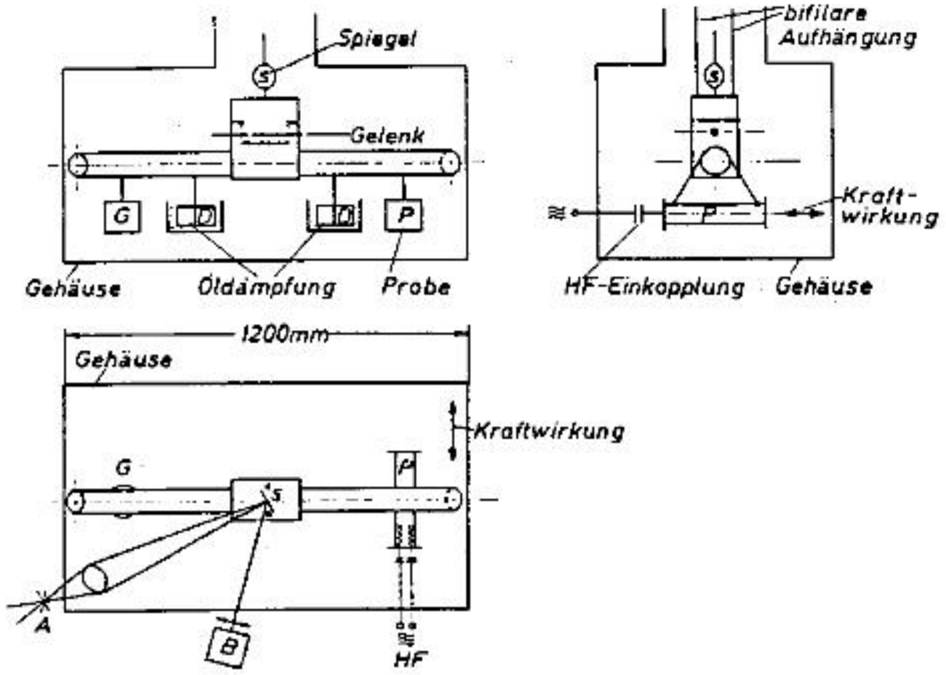


3. Beschreibung der Drehwaage und der Meßanordnung

Es wurde eine Drehwaage in bifilarer Aufhängung (um Materialeinflüsse der Aufhängedrähte auszuschließen) benutzt (Bild 2, 3). Das Material der Drehwaage sowie sämtlicher verwendeter Teile ist nicht ferromagnetisch oder paramagnetisch, sondern besteht im wesentlichen aus Aluminium und Messing. Die Aufhängung ist aus 0,3 mm Edelstahldraht. Die gesamte Drehwaage befindet sich in einem Gehäuse, um Einwirkungen äußerer Luftströmungen auszuschließen.

Elektrostatische Einflüsse, magnetische Einflüsse sowie Luftbewegung haben bei entsprechender Anordnung nachweislich keine störende Wirkung, welche die Größenordnung des zu erwartenden Effektes erreicht. Dies konnte nach einer langen Reihe von umfangreichen Versuchen nachgewiesen werden. Die Auslenkung der Drehwaage wird über Beleuchtungseinrichtung, Drehspiegel und Schreiber registriert. Der Schreiber trägt hierbei eine Photozellenanordnung, mittels der er dem Lichtstrahl nachgeführt wird. Der Lichtweg beträgt 7 m. Die Empfindlichkeit der Drehwaage bezogen auf den Schreiber beträgt bei 7 m Lichtweg 25 dyn cm/cm. Die Drehwaage war durch Öl und Dämpferflügel aperiodisch gedämpft. Die ungedämpfte Eigenschwingungszeit beträgt 120 s.

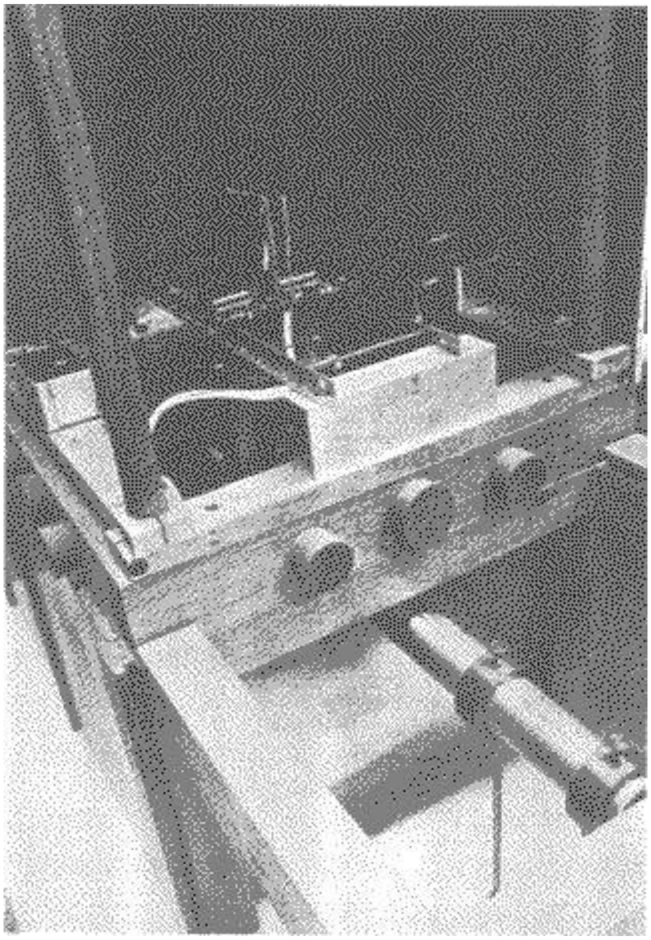
Bild 2:



P = Probe ~ G = Gewicht ~ S = Drehspiegel ~ D = Öldämpfung ~ L = gelenkige Aufhängung: B = Schreiber (in Nachfolgeschaltung) ~ s = Lichtweg (7 m) ~ A = Lichtquelle

Die Einkopplung von Hochfrequenz erfolgte kapazitiv über Luftkondensatoren auf die auf der Drehwaage befindliche Probe (in Einzelversuchen wurde auch induktiv eingekoppelt) [4]. Die HF-Spannungen betrugen bis etwa 10 V effektiv. Die Leistungen lagen im Bereich von 20 Mikrowatt bis einige 100 Milliwatt. Zur Hochfrequenzerzeugung wurde ein Gegentakt-Oszillator, der einen Gegentakt- Leistungsverstärker aussteuern konnte verwendet. Im allgemeinen wurde jedoch der Endverstärker nicht benützt, sondern nur der Anteil an Hochfrequenz, welcher vom Oszillator über die Gitteranodenkapazität des Endverstärkers in die Versuchsanordnung gelangte (Spannungsdämpfungsfaktor etwa 100 bis 200). Die volle Leistung des Gegentaktverstärkers bei voller Aussteuerung beträgt 20 bis 50 Watt. Bei Verwendung der Leistungsendstufe konnte jedoch bei den bisher durchgeführten Experimenten zunächst keine weitere Steigerung der Effekte festgestellt werden (Sättigungserscheinung). Demzufolge wurde ein Großteil der Versuche ohne Leistungsverstärker und daher mit sehr geringem Leistungsniveau gefahren Die Frequenzmessung erfolgte mit achtstelligen digitalen Frequenzzählern.

Bild 3: Ansicht der Drehwaage von schräg oben ~ Ein Teil der Verkleidung ist hierbei entfernt. Man erkennt die Dämpfungsvorrichtung sowie das zur Eichung dienende Spulenpaar. Dieses Spulenpaar erzeugt ein Magnetfeld, welches ein bekanntes Drehmoment auf eine weitere, an der Waage befestigte, stromdurchflossene Spule ausübt.



---

4. Durchgeführte Versuchsarbeit

Zunächst wurden zwei im Jahre 1970 fertiggestellte Drehwaagen ausgedehnten Null-Läufen unterzogen. Es konnte keine Koinzidenz mit Temperaturschwankungen und Gebäudebewegungen (kontrolliert mit einer elektronischen Libelle auf Bogensekunden genau) festgestellt werden.

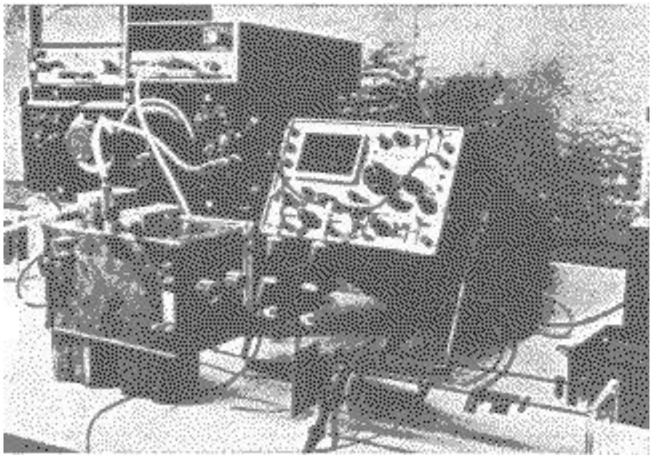
Ebenfalls sind elektrostatische Effekte auszuschließen (Besprühen der behandelten Isolierteile mit Hochspannung aus einem 15 Kilovolt- Transformator führte nach entsprechenden Modifikationen zu keinerlei Effekten mehr). Ferner ist kein Einfluß äußerer statischer Magnetfelder feststellbar. Zu diesem Zweck wurde die gesamte Anordnung mit einem Spulensystem umgeben, mit dem ein Magnetfeld bis etwa zum Hundertfachen der Horizontalintensität des erdmagnetischen Feldes erzeugt werden konnte. Es war kein Einfluß auf die Drehwaage feststellbar.

Untersuchungen über den Einfluß von Luftbewegungen auf Ausschläge der Drehwaage zeigten, daß vor allem thermische Turbulenz einen Einfluß haben kann, wenn die

Drehwaagenverkleidung ein zu großes Volumen besitzt. Nach längeren Versuchen wurde schließlich eine aus Holz bestehende Verkleidung, welche die Drehwaage in möglichst geringem Abstand umgibt, gewählt, wodurch bei der bestehenden Empfindlichkeit der Drehwaage der Einfluß dieser Luftturbulenzen praktisch völlig eliminiert werden konnte. Es ist überdies zu bemerken, daß sich diese Drehwaage als bemerkenswert zuverlässiges Meßinstrument erwiesen hat. Es verbindet die Eigenschaften, wie hohe Empfindlichkeit gegenüber der Meßgröße, mit sehr geringer Empfindlichkeit gegenüber äußeren mechanischen Störungen in ähnlicher Weise wie etwa ein Galvanometer. Es ist ferner interessant festzustellen, daß die Empfindlichkeit der Drehwaage etwa um einen Faktor 10^3 bis 10^4 geringer ist wie diejenige der Drehwaagen 1. und 2. Art nach Eötvös, die aus diesem Grund nurmehr im Hochvakuum zu einwandfreier Funktion gebracht werden können.

Nachdem nach diesen Vorbereitungsarbeiten die Null-Läufe der Drehwaagen sichergestellt waren und die 2. Drehwaage in Koinzidenzanordnung in einem anderen Teil des Gebäudes untergebracht war, wurde mit der Versuchsdurchführung begonnen. Es wurde entlüftetes Wasser - vornehmlich Leitungswasser -, aber auch entsalztes Wasser von Raumtemperatur in die Probe unter Benützung einer Wasserstrahlpumpe eingeführt. Das Wasser verblieb in der geschlossenen Probe während einer gesamten Versuchsperiode - im allgemeinen 4 bis 6 Wochen. Die Probe wurde zunächst auf die Drehwaage gesetzt und zusätzliche Null-Läufe gefahren. Sie waren einwandfrei und entsprachen den üblichen Erwartungen. Dann wurde die Probe durch Hochfrequenzeinspeisung (Dauer im allgemeinen ca. 1 bis 2 Minuten) aktiviert. In einigen Fällen wurde diese Aktivierung mehrmals in Pausen von einigen Minuten wiederholt. Die eingespeiste Leistung betrug im allgemeinen etwa 20 Mikrowatt bis 100 Milliwatt. Im Verlauf von drei Jahren wurden etwa über 200 Versuche durchgeführt. Die meisten dieser Versuche wurden nach etwa zwei Tagen abgebrochen. Etwa 12 Versuche wurden über längere Zeit (6 bis 8 Wochen) durchgeführt. Bei allen diesen Versuchen war die zweite Drehwaage lediglich mit Ballast versehen im Betrieb. Es konnte niemals Koinzidenz, etwa mit Gebäudeschwingungen, tektonischen Vorgängen usw. festgestellt werden. Auch Gezeiteneinflüsse, wie sie etwa bei den Drehwaagen nach Eötvös auftreten können, kommen hier wegen vergleichsweise wesentlich geringerer Empfindlichkeit der Anordnung nicht in Betracht.

Bild 4: Typischer stationärer Versuchsaufbau ~ Man erkennt im Vordergrund rechts die Probe, in welche kapazitiv Hochfrequenz über ein Anpaßglied eingespeist wird. Im Hintergrund entsprechende Geräte zur Erzeugung und Messung geeigneter Hochfrequenz. Dieser staionäre Versuchsaufbau dient lediglich zur Messung der Hochfrequenzeigenschaften der Probe. Beim aktiven Versuch befindet sich lediglich die Probe auf der Drehwaage, während die Einspeisung der Hochfrequenz kapazitiv erfolgt. Die elektrostatische Kraftwirkung der Kondensatorplatten ist dabei um zwei Größenordnungen kleiner als der kinetobarische Effekt und kann daher vernachlässigt werden.



5. Versuchsergebnisse

Die Versuchsergebnisse können wie folgt wiedergegeben werden:

1. Einspeisung von geeigneter Hochfrequenzenergie auf bestimmte Proben hat Kraftwirkungen auf die Probe zur Folge. Die von uns mit einer speziellen Drehwaage gemessenen Kräfte lagen im Bereich von 10 dyn (Bild 5, 6). Es ist anzunehmen, daß weit größere Kraftwirkungen auftreten können, wie aus Meßprotokollen von R. G. Zinsser hervorgeht, wonach von ihm in seltenen Fällen Kraftwirkungen bis zu 1500 dyn über mehrere Stunden beobachtet wurden. Die zur Verwendung geeigneten Frequenzen müssen genau eingehalten werden. Sie die vermutlich diskret verteilt sind und ein Ansprechen der Probe zur Folge haben können. Die genaue Einhaltung der jeweiligen Frequenzen ist erforderlich. Die verwendeten Frequenzen lagen im Bereich von 30 bis 40 MHz, 120 bis 130 MHz, 200 bis 350 MHz. Bei einer Sinuseinspeisung konnten keine dynamischen Effekte nachgewiesen werden. Anscheinend sind Oberwellenanteile erforderlich. Einspeisung von Hochfrequenzenergie mit einem grid-dip-Meter, etwa bei Bestimmung von Resonanzfrequenzen, ergab ebenfalls Effekte

Bild 5: Typische Kurzzeiteffekte als Folge von Hochfrequenzeinspeisung ~ Der Abstand von der Null-Linie entspricht Auslenkungen der Drehwaage. Zum Vergleich ist oben ein Null-Lauf der Drehwaage angegeben. Die Hochfrequenzeinspeisung erfolgte teils über einen entsprechenden Oszillator, teils über einen entsprechenden Oszillator, teils über ein Grid-dipmeter (GD). Die vierte Reihe gibt den Einfluß äußerer Störquellen auf die aktivierte Probe wieder (Leuchtstoffröhren, Funken).

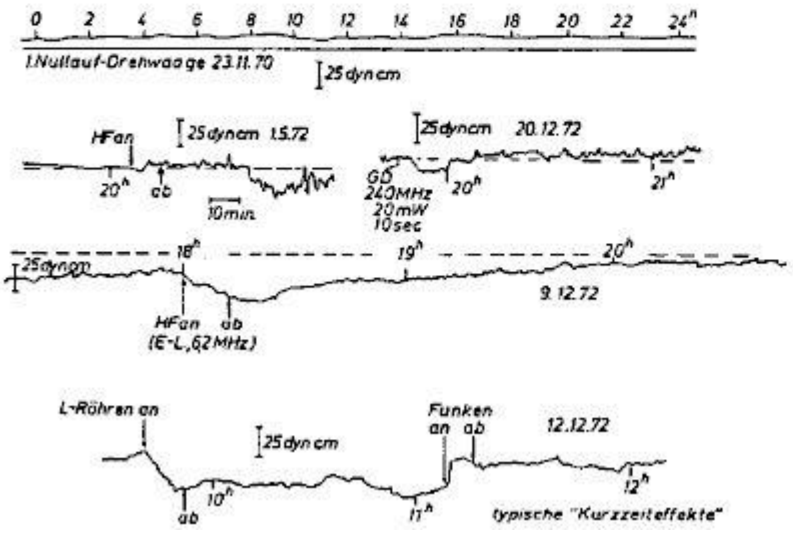
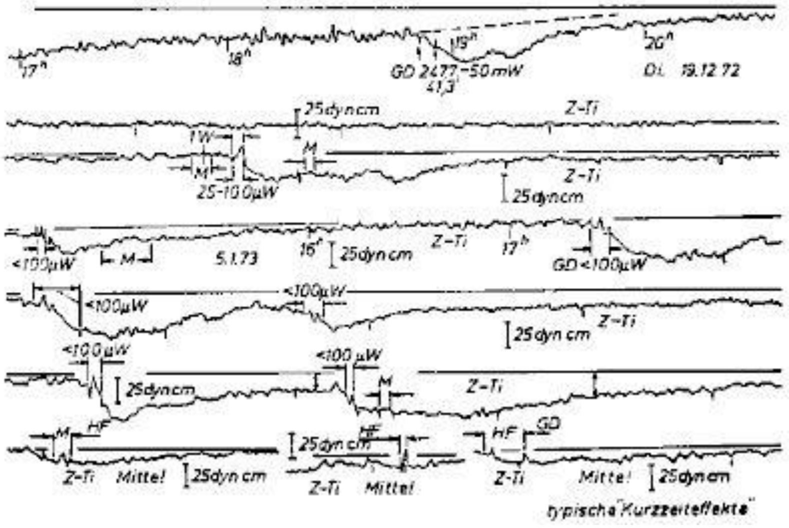


Bild 6: Typische Kurzzeiteffekte als Folge von Hochfrequenzeinspeisung ~ GD bedeutet Einspeisung über ein Grid-dipmeter; die Zahlen daneben sind Frequenzangaben. Auch der maximale Wert der eingespeisten Leistung (mW, 5W) ist angegeben. M bedeutet zusätzliche Überlagerung eines magnetischen Gleichfeldes vom hundertfachen Betrag der Horizontalintensität des erdmagnetischen Feldes (Z-Ti ist eine Probenbezeichnung). Auch die absolute Empfindlichkeit der Drehwaage (dyncm/cm) ist angegeben. Die kurzen vertikalen Striche der Meßkurven sind Zeitmarken (Abstand 1 Stunde) mit entsprechenden Angaben der Tageszeit. Interessant ist ein Vergleich der Meßkurven in der untersten Reihe mit den übrigen Meßkurven. Im Gegensatz zu den anderen Meßkurven befand sich die Probe bei den in der letzten Reihe dargestellten Meßergebnissen in der Mitte der Drehwaage unterhalb der bifilaren Aufhängung und nicht wie sonst an dem einen Ende des Waagebalkens. Trotz Aktivierung sind in der untersten Reihe gegenüber vorher praktisch keine Auslenkungen vorhanden, was auf eine Kraftwirkung und nicht etwa auf eine Drehmomenteinwirkung hinweist.



1. Die Kraftwirkungen konnten nicht auf bekannte Wechselwirkungen mit elektrischen oder magnetischen Feldern oder auf äußere Störeinflüsse wie Luftbewegung, Erwärmung, Gebäudeerschütterungen usw. zurückgeführt werden. Es handelt sich im Rahmen der bisherigen Ergebnisse um ein neuartiges Phänomen.

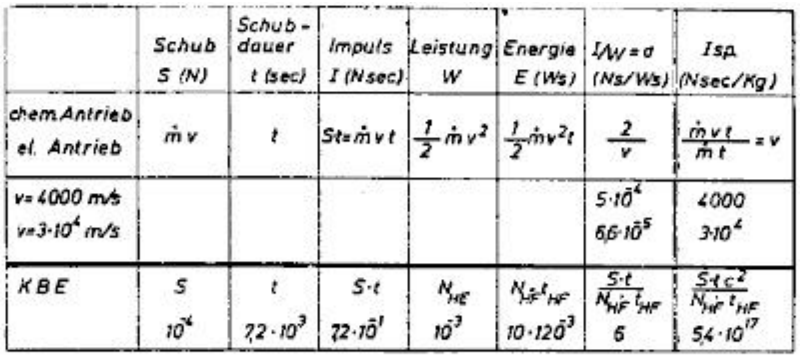
2. Die Kraftwirkungen halten auch nach Abstellen der hochfrequenten Energiezufuhr an und zeigen einerseits kurzperiodischen (ca. 2 Stunden) und andererseits langperiodischen Charakter (Tage) (BILD 8, 9).

3. Die eingespeiste Hochfrequenzleistung lag im Gebiet von maximal bis zu etwa 100 Milliwatt, die Dauer der Einspeisung maximal bis zu 5 Minuten. Erwärmungseffekte der Probe sind damit ausgeschlossen.

4. Derartige "aktivierte" Proben reagieren dynamisch auf schwächste kurzzeitige äußere Hochfrequenzeinwirkungen, beispielsweise das Einschalten von Leuchtröhren, "Verbraten" von Schichtwiderständen, Funkentladungen in größerer Entfernung, Hochfrequenzoszillatoren, welche sich nicht im Versuchsraum befinden, sowie auf Blitze. Die damit zusammenhängenden Effekte, die im wesentlichen Ausschläge mit Zeitdauer von 1 bis 2 Stunden zur Folge haben, machen natürlich eine einwandfreie Versuchsausführung sehr schwierig, da mit den vorhandenen Mitteln eine vollkommene Abschirmung gegenüber äußeren Hochfrequenzstörungen nicht möglich war. Der Einfluß dieser äußeren hochfrequenten Störungen kann also ebenfalls wie die bewußte Einkopplung von Hochfrequenzenergie zu dynamischen Effekten Anlaß geben. Der Einfluß dieser äußeren Hochfrequenzstörungen kann bereits bei derartig geringem Störniveau erfolgen, daß unter Umständen die Anwesenheit von Personen im Versuchsraum bereits ausreichend ist, um bei vorherigen aktivierten Proben auf der Drehwaage Ausschläge bis zu etwa 2 Stunden Dauer hervorzurufen. Es konnte dabei kein Einfluß äußerer, durch die Anwesenheit von Personen bedingten Störungen nachgewiesen werden, wie beispielsweise Erwärmung der Luft durch eintretende Personen, Luftbewegungen, Bodendurchbiegungen usw. Es ist daher anzunehmen, daß das von Lebewesen ausgesandte Hochfrequenzfeld, welches bis ins Mikrowellengebiet reichen kann, für diesen Einfluß verantwortlich gemacht werden muß.

5. Bei aktivierten Proben treten ferner Langzeiteffekte auf. Die Drehwaage macht periodische Ausschläge mit einer Zeitdauer von etwa 12 Stunden, denen weitere Kurzzeiteffekte überlagert sind, die möglicherweise von äußeren hochfrequenten Störquellen stammen (BILD 8, 9). Die langperiodischen Ausschläge sind vermutlich auf die Sonnentätigkeit oder auf "Spherics" zurückführbar. Der Einfluß des sichtbaren Sonnenlichts ist jedoch auszuschließen, da der Versuchsraum nach außen stets vollständig abgedunkelt ist, so daß nur der im Radiobzw. Mikrowellengebiet befindliche Anteil der Sonnenstrahlung und der Atmosphäre dafür infrage kommt. Diese Langzeiteffekte klingen mit Zeiten von etwa 1 bis 2 Monaten ab. 2.

Bild 7: Tabelle von spezifischen Impulsen für verschiedene Antriebsverfahren ~



	Schub S (N)	Schub-dauer t (sec)	Impuls I (Nsec)	Leistung W	Energie E (Ws)	$I/W = \sigma$ (Ns/Ws)	Isp. (Nsec/Kg)
chem. Antrieb el. Antrieb	$\dot{m}v$	t	$St = \dot{m}vt$	$\frac{1}{2}\dot{m}v^2$	$\frac{1}{2}\dot{m}v^2 t$	$\frac{2}{v}$	$\frac{\dot{m}vt}{\dot{m}t} = v$
$v = 4000$ m/s $v = 3\cdot10^4$ m/s						$5\cdot1\bar{0}^4$ $6{,}6\cdot1\bar{0}^5$	4000 $3\cdot10^4$
KBE	S $1\bar{0}^4$	t $7{,}2\cdot10^3$	$S\cdot t$ $7{,}2\cdot1\bar{0}^1$	N_{HF} $1\bar{0}^3$	$N_{HF}\cdot t_{HF}$ $10\cdot12\bar{0}^3$	$\frac{S\cdot t}{N_{HF}\cdot t_{HF}}$ 6	$\frac{S\cdot t\cdot c^2}{N_{HF}\cdot t_{HF}}$ $5{,}4\cdot10^{17}$

Bild 8: Typische Langzeiteffekte mit überlagerten Kurzzeiteffekten ~ Im Vergleich sind Null-Läufe der Drehwaage (strichlierte Kurven) sowie auf den Tag genau ein Jahr später Läufe mit bereits vor längerer Zeit aktivierten Proben aufgetragen. Man erkennt deutlich langperiodisches Verhalten (die Zahlenangaben oben bedeuten die Tageszeit) mit kurzperiodischen Überlagerungen. Im Vergleich ist in der untersten Reihe der Einfluß einer simulierten Störung auf die Drehwaage aufgetragen. Das Wasser der Probe wurde über einen Heizwiderstand mit 50 W Leistung bis zu einer Temperatur von 800°C aufgeheizt. Die Stromzufuhr erfolgte über Goldstreifen von 20 5m Stärke.

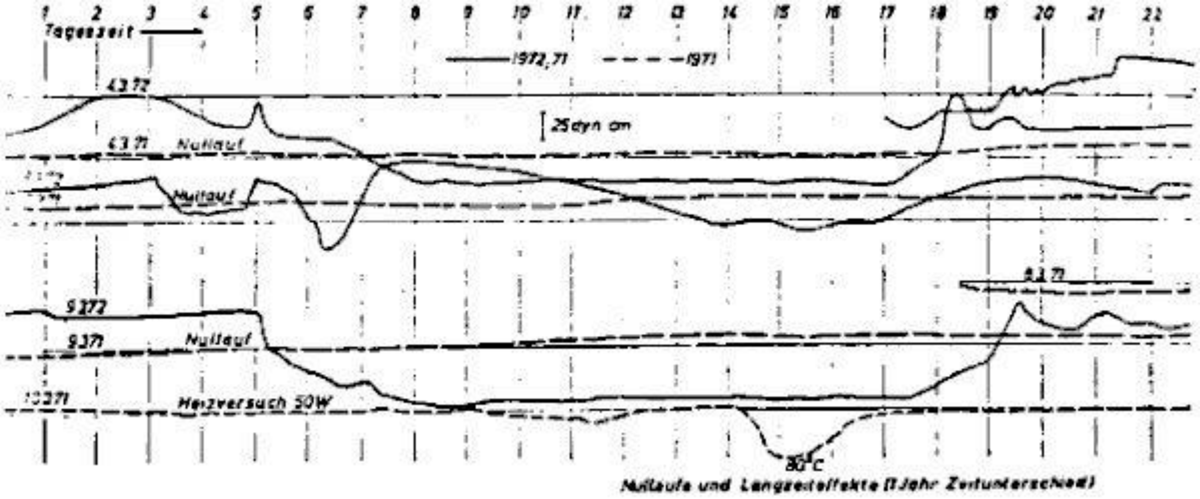
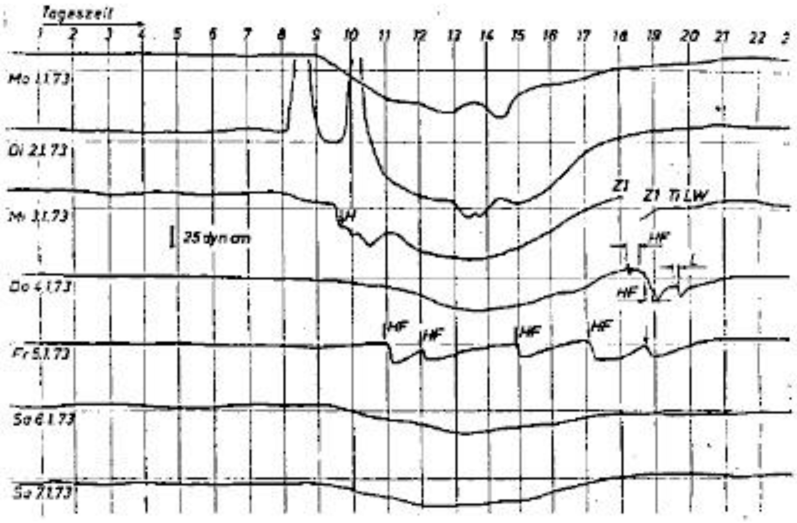


Bild 9: Typische Langzeiteffekte mit überlagerten Kurzzeiteffekten. ~ Die Kurzzeiteffekte sind teils durch beabsichtigte hochfrequente Energiezufuhr (3. und 5. Reihe von oben), teils durch den Einfluß äußerer hochfrequenter Störungen entstanden (2. und 4. Reihe von oben).



6. Folgerungen hinsichtlich dynamischer Wirkungen

Wenngleich die bisher nachgewiesenen Kräfte noch nicht die Größenordnung erzielt haben, wie sie etwa bei elektrischen Triebwerken auftreten, so bietet das Vorhandensein derartiger, bisher unbekannter Kraftwirkungen, für die eine sinnvolle Übereinstimmung mit den Axiomen der Mechanik erst gefunden werden muß, Anlaß genug für weitere Untersuchungen - auch im Hinblick auf neue, sehr unkonventionelle Antriebsprinzipien. Beispielsweise konnte an Proben, die 120 s einem Hochfrequenzfeld mit einem Energiefluß von etwa 1 Milliwatt ausgesetzt waren, Kraftwirkungen zwischen 5 und 10 dyn über 2 Stunden beobachtet werden. Dem entspricht ein gespeicherter Impuls von 3,6*10e4 bzw. 7,2*10e4 s oder auf die eingespeiste Energie bezogen ein gespeicherter Impuls von 3.6*10e4 bzw. 7.2*10e4 s oder auf die eingespeiste Energie bezogen ein gespeicherter Impuls von(vgl. BILD 7). Dieser Wert übertrifft denjenigen konventioneller Antriebsverfahren um mehrere Zehnerpotenzen (BILD 7). Diese Tatsache bietet Anlaß genug, dieses Phänomen weiter zu untersuchen. Selbstverständlich muß versucht werden, die Frage zu beantworten, inwieweit dieses Phänomen sich auf bekannte physikalische Effekte zurückführen läßt. Eine sorgfältige Analyse aller Möglichkeiten zeigt jedoch, daß bisher noch kein physikalischer Effekt bekannt ist, der zur Erklärung dieses Phänomens herangezogen werden kann. Ursprünglich wurde versucht, diese dynamischen Effekte durch Drehmomente zu erklären, die durch Spin-Umklapp-Prozesse (Veränderung des Drehimpulses) - beispielsweise bei Kern-Spin-Resonanz bzw. Dipol-Dipol-Resonanz - hervorgerufen werden. Bei Gültigkeit dieser Hypothese würde durch Zufuhr von Hochfrequenzenergie bei Vorliegen entsprechender Resonanzfrequenzen in der Probe eine Spin-Orientierung auftreten, die mit entsprechender Relaxationszeit abgebaut wird und zufolge der Drehimpulsänderung Drehmomente und damit dynamische Effekte auf die Probe ausüben würde. Damit wären Verbindungen zur Kern-Spin-Resonanz gegeben. Die genaue Untersuchung der Effekte hat aber gezeigt, daß Kräfte und nicht Drehmomente vorliegen. Der Ausschlag der Drehwaage ist nämlich von der Lage der Probe auf der Drehwaage abhängig, was eindeutig das Vorliegen von Kräften beweist.

7. Folgerungen im Hinblick auf neuartige Informationsübertragung

Obwohl die bisherigen experimentellen Ergebnisse unter Anlegung allerstrengster Maßstäbe noch nicht als vollständig gesichert gelten können, ergeben sich bemerkenswerte Hinweise auf daraus abzuleitende Entwicklungsmöglichkeiten. Ferner lassen sich Grundlagen schaffen, die zur Basis eines zukünftigen experimentellen und theoretischen Versuchsprogrammes dienen.

Zweifellos handelt es sich hier um einen elektromagnetischen Effekt, welcher in Materie Veränderungen bewirkt. Diese Veränderungen sind über längere Zeit hin in gespeicherter Form vorhanden und können von dynamischen Effekten begleitet sein. Über die Natur dieser dynamischen Effekte kann derzeit noch nichts ausgesagt werden. Zunächst wurde versucht, diese dynamischen Effekte durch Drehmomente zu erklären, die durch Spinumklapprozesse (Veränderung des Drehimpulses) - eben bei Kernspinresonanz -.hervorgerufen werden. Bei Gültigkeit dieser Hypothese würde durch Zufuhr von Hochfrequenzenergie und bei Vorliegen entsprechender Resonanzfrequenzen in der Probe eine Spinorientierung auftreten, die mit entsprechender Relaxationszeit im Verlauf von 1 bis 2 Stunden abgebaut wird und zufolge der Drehimpulsänderung Drehmomente und damit dynamische Effekte auf die Probe ausüben würde. Abschätzungen zeigen jedoch, daß diese Hypothese aus verschiedenen, hier nicht angeführten Gründen zu Widersprüchen führt und für den vorliegenden Fall nicht anwendbar sein dürfte. Es steht derzeit lediglich fest, daß die Drehwaage als Detektor für irgendwelche Vorgänge dient, welche mit nahezu lächerlich geringen Hochfrequenzleistungen ausgelöst werden können. Gerade die Möglichkeit, hier mit außerordentlich geringen Leistungen Effekte zu erzielen, ist von höchster Bedeutung. Das Auftreten dynamischer Effekte bei Vorliegen äußerer Störquellen, die relativ weit von der Versuchsanordnung entfernt sein können, zeigt, wie empfindlich diese Anordnung auf derartige Hochfrequenzeinflüsse anspricht. Das ebenfalls festgestellte Auftreten dynamischer Effekte bei Anwesenheit von Versuchspersonen im Raum könnte möglicherweise durch das von Lebewesen erzeugte äußerst schwache Hochfrequenzfeld erklärt werden. Die hohe erforderliche Frequenzkonstanz läßt ferner darauf schließen, daß in der Probe Resonanzvorgänge mit sehr geringer Halbwertbreite ablaufen können (wie es ja auch bei Kernspinresonanz und Dipol-Dipolresonanz in Flüssigkeiten und Gasen der Fall ist, wo Halbwertbreiten von einigen Hertz durchaus realisiert sind). Dies legt den Schluß nahe, daß zufolge dieser geringen Halbwertbreiten einerseits die Möglichkeit besteht, mit außerordentlich geringen Hochfrequenzleistungen Effekte zu erzielen, wenn nur die Frequenz genügend konstant gehalten wird. Eine untere Grenze für die erforderliche Hochfrequenzleistung andererseits ist gegeben, wenn die eingespeiste Hochfrequenzleistung den auf das Frequenzintervall der Halbwertbreite entfallenden Anteil der thermischen Rauschleistung größenordnungsmäßig erreicht. Bei Halbwertbreiten von einigen Hertz sind die Leistungen von etwa 10e-20 Watt.

Wenngleich hiermit die dynamischen Wirkungen nicht erklärt werden können, geben diese Überlegungen doch Hinweise dafür, weshalb die verwendete experimentelle Anordnung auf äußere elektromagnetische Störeinflüsse so empfindlich reagieren kann. Beispielsweise ist die Leistungsflußdichte eines Senders von 1 Watt Sendeleistung in einer Entfernung von 10e5 km = 10e-21 Watt/cm2, so daß Signalquellen unter diesen Umständen noch auf außerordentlich große Entfernung wirken können. Die Möglichkeiten, die sich hier für eine Informationsübertragung ergeben können, gehen aus dem bisher Gesagten wohl unmittelbar hervor und bedürfen keiner weiteren Andeutungen. Betrachtet man ferner die Ausbreitung elektromagnetischer Energie unter den hier vorliegenden Bedingungen, dann ergeben sich ebenfalls sehr interessante Aspekte. Normalerweise wird die elektromagnetische Energie bei Ausbreitung in Materie absorbiert. Dies geschieht einerseits in Isolatoren durch dielektrische Verluste und andererseits in elektrischen Leitern durch Wechselwirkung von Elektronen mit dem Kristallgitter.

Betrachten wir zunächst die Ausbreitung in Isolatoren (keine Verlustmechanismen, die durch Leitungselektronen verursacht werden). In diesem Fall besteht die Möglichkeit, daß in ähnlicher Weise wie beim Maser Inversion von Besetzungszuständen vorliegen kann, was zusammen mit der einfallenden elektromagnetischen Welle induzierte Emission und damit einen kohärenten Verstärkungsmechanismus ermöglicht. Dies kann zu einer Verringerung der bei der Ausbreitung auftretenden Dämpfungsverluste (dielektrische Verluste) führen. Die Inversion der Besetzungszustände könnte durch stets vorhandene Hochfrequenzenergie höherer Frequenz zustande kommen (Pumpfrequenz). Bei Ausbreitung einer elektromagnetischen Welle in Wasser beispielsweise würde dies bedeuten, daß zufolge Absorption von geeigneter Hochfrequenzenergie, die entweder von der Sonne, von Gewittertätigkeit oder anderer atmosphärischer Tätigkeit oder aber auch von der weltweiten Verwendung elektrischer Energie stammen kann, im Wasser Energiezustände in entsprechenden Inversion auftreten. Wird nunmehr ein Hochfrequenzsignal mit geeigneter Frequenz in das Wasser eingeleitet, so wäre es durchaus denkbar, daß durch induzierte Emissionen die Ausbreitung elektromagnetischer Wellen entsprechend dem oben Gesagten über weite Entfernungen möglich wird. Die Intensität der hochfrequenten elektrischen bzw. magnetischen Feldstärke kann dabei außerordentlich gering sein - ja möglicherweise sogar unterhalb des thermischen Rauschpegels liegen. Es ist dabei nur erforderlich, daß die Halbwertbreite der mit der induzierten Emission verknüpften Resonanzvorgänge entsprechend gering, d. h. die Lebensdauer der Inversionszustände entsprechend hoch ist. Hieraus könnte sich eine Möglichkeit ergeben, Signale und damit Informationen über weite Entfernungen durch Wasser, möglicherweise sogar durch wasserführende Schichten zu übertragen. Voraussetzung für eine wirkungsvolle Informationsübertragung wäre jedoch ein geeignetes schmalbandiges Empfangssystem mit Bandbreiten in der Größenordnung von einigen Hertz. Derzeit können noch keine genauen Aussagen über die zur Übertragung erforderlichen Frequenzen gemacht werden. Nach den bisherigen experimentellen Ergebnissen können dieselben im Ultrakurzwellengebiet und möglicherweise auch im Mikrowellengebiet liegen. Auch die Ausbreitung elektromagnetischer Energie in metallischen Leitern kann gegenüber der herkömmlichen Auffassung Modifikationen aufweisen, wenn die Intensität des elektromagnetischen Feldes der Welle sehr klein wird. Fällt beispielsweise eine elektromagnetische Welle mit hoher Intensi.ät auf eine Metalloberfläche, dann werden die freien Elektronen im Metall durch den elektrischen Feldvektor zum Mitschwingen mit der Welle angeregt. Dieses Mitschwingen erfolgt bei großen Feldamplituden kohärent, d. h. es besteht innerhalb größerer lokaler Bereiche eine eindeutige Phasenbeziehung zwischen den schwingenden Elektronen. Dies hat zur Folge, daß sich die durch die oszillierenden Elektronen erzeugten elektromagnetischen Felder der einfallenden elektromagnetischen Welle überlagern und diese durch Superposition auslöschen. Dies ist letzten Endes der bekannte Skineffekt. Das Auslöschen durch Interferenz wird gestört, wenn die eindeutige Phasenbeziehung zwischen den schwingenden Elektronen gestört ist, was dann der Fall ist, wenn die Elektronen durch Stöße Energie an das Gitter abgeben. Da diese Stoßprozesse völlig irregulär verlaufen, wird die Kohärenz gestört, so daß die Eindringtiefe beim Skineffekt mit zunehmender Wechselwirkung der Leitungselektronen mit dem Gitter - also mit zunehmendem spezifischen Widerstand des Materials - ebenfalls zunimmt.

Betrachten wir nun eine elektromagnetische Welle, wo der elektrische Feldvektor dem Betrag nach so gering ist, daß der Energiezuwachs der Leitungselektronen klein gegenüber der thermischen Energie der Elektronen ist. In diesem Fall läßt sich zeigen*, daß hier ein andersartiges Verhalten als beim normalen Skineffekt vorliegt. Bei Erklärung des Skineffektes wird bekanntlich stets angenommen, daß die Energie der schwingenden Elektronen groß gegenüber ihrer mittleren thermischen Energie ist.

Bei Berücksichtigung der thermischen Energie der Leitungselektronen ist eine größere Eindringtiefe als beim normalen Skineffekt möglich. Diese Eindringtiefe ist durch die Thermalisierung der einfallenden elektromagnetischen Energie durch Streuung an den Leitungselektronen gegeben. Der Unterschied gegenüber dem gewöhnlichen Skineffekt ist nun augenscheinlich. Beim Einfall einer elektromagnetischen Welle entsprechend schwacher Intensität werden Elektronen zum Mitschwingen angeregt. Diese Elektronenschwingungen stellen aber nur eine kleine Störung der stochastischen Bewegung der Elektronen zufolge ihrer thermischen Eigenbewegung dar. Auf diese Weise besteht keine Kohärenz zwischen den schwingenden Elektronen, und eine Auslöschung der einfallenden Welle durch Interferenz kann auf diese Weise nicht stattfinden, da sich diese Anteile der schwingenden Elektronen zeitlich und räumlich gesehen ausmitteln. Hiermit soll nur gezeigt werden, daß auch in metallischen Leitern durchaus die Möglichkeit einer Ausbreitung elektromagnetischer Energie unterhalb des Rauschpegels über größere Entfernungen möglich ist. Dies würde bedeuten, daß sich elektromagnetische Energie nicht auf so einfache Weise wie bisher angenommen durch metallische Leiter vollständig abschirmen läßt. Im Rahmen des Skineffektes ist natürlich eine Abschirmung möglich. Diese kann aber nur bis zum Rauschpegel gehen. Innerhalb des Rauschpegels besteht durchaus die Möglichkeit einer Ausbreitung von elektromagnetischer Energie. Es ist einzusehen, daß diese Aspekte für die Übertragung von Signalen und Informationen von größter Bedeutung sein können.

Die bisher geäußerten Gedanken und Möglichkeiten können jedoch erst dann Bedeutung erlangen, wenn extrem schmalbandige Empfänger für elektromagnetische Energie bekannt sind, welche auf extrem schwache Signale unterhalb des thermischen Rauschpegels ansprechen können.

Diese Ergebnisse, die möglicherweise Zugänge in völlig neuartige und noch nicht übersehbare Regionen menschlichen Wissens eröffnen können, werden in ihrer Bedeutung noch gesteigert, wenn man bedenkt, daß hier auch biologische Aspekte berücksichtigt werden müssen. Die Erzeugung sowie Absorption von elektromagnetischer Energie derart geringer Intensität im entsprechenden Frequenzbereich ist auch in der Molekularstruktur der Zelle möglich und dürfte bei der Evolution des Lebens eine nicht zu unterschätzende Rolle gespielt haben. Berücksichtigt man in der UdSSR veröffentliche Arbeiten auf diesem Gebiet, dann besteht die Möglichkeit einer Informationsübertragung zwischen Zellen unter Benützung elektromagnetischer Wellen. Es zeichnet sich hier die Entwicklung einer Wissenschaft im Grenzbereich zwischen Physik, Psychologie und Biologie ab, der sicher in etwa 20 Jahren eine zentrale Rolle zugewiesen sein wird.

8. Zukünftiges Programm

Ein zukünftiges Programm muß hier vor allem eine Sicherung der experimentellen Ergebnisse unter Anwendung allerstrengster Maßstäbe einschließen. Konkret gesprochen bedeutet dies die Anbringung der Drehwaage im Hochvakuum, um Luftbewegungen auszuschließen, wobei die Vakuumkammer gleichzeitig so weit wie möglich als Abschirmung für äußere elektromagnetische Strahlung dient. Die Wiederholung der bisher durchgeführten Versuchsreihe mit einer derartig verbesserten Anordnung würde dann bei positivem Ergebnis die unanfechtbare Bestätigung der beschriebenen Effekte bedeuten. Zusätzlich sind die Untersuchungen über einen größeren Frequenzbereich als bisher auszudehnen. Untersucht wurde der Frequenzbereich von etwa 30 Megahertz bis 1,4 Gigahertz. Die in Abschnitt 5 angeführten Langzeiteffekte lassen einen starken Einfluß von elektromagnetischer Strahlung der Sonne möglich erscheinen.

Demzufolge muß der untersuchte Frequenzbereich auf das Mikrowellenspektrum der Sonne, d. h. bis etwa 20 Gigahertz, ausgedehnt werden. Abgesehen von der Messung der dynamischen Effekte mit der Drehwaage entspricht dies im wesentlichen der Anwendung von Hochfrequenzspektroskopie mit entsprechenden Geräten und Nachweismethoden.

Dabei muß vor allem die Absorption von Hochfrequenzenergie in der Probe selbst mit entsprechenden Methoden untersucht werden. Ferner muß ein Empfänger für elektromagnetische Wellen zur Verfügung stehen, der schwächste Signale aus dem thermischen Rauschen heraus nachweisen kann. Ein derartiges Gerät kann unter Benützung der Erkenntnisse auf dem Gebiet der Kernspinresonanzspektroskopie entwickelt werden. Bekanntlich stellen bestimmte, in der Kernspinresonanzspektroskopie verwendete Proben Resonanzsysteme mit Halbwertbreiten bis zu 1 Hertz hinunter dar, wobei sich thermische Störungen, die eine Erhöhung dieser Bandbreite bewirken würden, zeitlich und räumlich ausmitteln.

9. Zusammenfassung

Es wird über Arbeiten berichtet, die einem dynamischen Effekt zugrunde liegen, der auftritt, wenn entsprechende wasserhaltige Proben Hochfrequenzfeldern ausgesetzt werden. Im Rahmen der experimentellen Möglichkeiten konnten dynamische Effekte sowie ein Einfluß schwächster äußerer Störfelder auf diese Proben nachgewiesen werden. Die dynamischen Wirkungen, deren experimenteller Befund völlig eindeutig ist, deren Erklärung bzw. Zurückführung auf bekannte Phänomene bisher nicht gelungen ist, entsprechen Kräften in der Größenordnung von 1 bis 10 dyn. Die beobachteten Kraftwirkungen bauen sich bei Einkopplung von Hochfrequenzenergie auf und können nach Abstellung der Energiezufuhr anhalten. Zeitkonstanten bis zu 2 Stunden konnten dabei festgestellt werden. Obgleich die bisher nachgewiesenen Kraftwirkungen noch nicht die Größenordnung erreicht haben, wie sie etwa bei elektrischen Triebwerken auftreten, bietet das Vorhandensein derartiger, bisher unbekannter Kraftwirkungen, für die eine sinnvolle Übereinstimmung mit den Axiomen der Mechanik gefunden werden muß, Anlaß genug für weitere Untersuchungen auch im Hinblick auf sehr unkonventionelle Antriebsprinzipien.

Hervorzuheben ist dabei das äußerst geringe Leistungsniveau (20 Mikrowatt bis einige 100 Milliwatt), welches diesen Effekt hervorrufen kann. Diie Frequenz der eingespeistenHochfrequenzenergie muß außerordentlich konstant gehalten werden, wenn Effekte erzielt werden sollen. Es bestehen Hinweise darauf, daß es sich hierbei um charakteristische Eigenschaften der Probe handelt. Ferner gibt es Hinweise, daß hierbei periodische Signale nachgewiesen werden können, die im thermischen Rauschen untergehen. Es wurde darauf hingewiesen, daß die Ausbreitung derartig schwacher Hochfrequenzsignale sowohl in Isolatoren als auch in Leitern eine gegenüber dem bisher Geübten abweichende Betrachtungsweise verlangt. Dies vor allem deshalb, weil durch induzierte Emission ein Verstärkungsmechanismus existieren kann, der eine Ausbreitung schwächster elektromagnetischer Signale über weite Entfernungen ermöglichen kann. Hinsichtlich der Ausbreitung schwächster elektromagnetischer Signale in Leitern wurde darauf hingewiesen, daß hier ebenfalls gegenüber dem bisher Bekannten abweichende Betrachtungsweisen erforderlich sind, weil hier die durch das elektromagnetische Feld auf die Elektronen übertragene Zusatzenergie klein gegenüber der thermischen Energie der Elektronen ist. Dadurch ist eine völlige Abschirmung elektromagnetischer Energie, wie sie bei Verwendung von Metallen allgemein angenommen wird, nur bedingt möglich.

Auf die Aspekte, die sich hinsichtlich der Bedeutung elektromagnetischer Energie bei biologischen Prozessen ergeben, wurde hingewiesen.

Obwohl die bisherigen experimentellen Ergebnisse bei Anlegung allerstrengster Maßstäbe noch nicht als vollständig gesichert gelten können, ergeben sich bemerkenswerte Hinweise auf daraus erwachsende Konsequenzen. Zweifellos handelt es sich um ein Phänomen, bei dem durch Zufuhr von elektromagnetischer Energie Veränderungen in Materie bewirkt werden, welche über längere Zeit latent vorhanden sind und dynamische Effekte zur Folge haben können, wobei Gravitationswechselwirkung nicht auszuschließen ist.

Derzeit bleibt die Frage unbeantwortet, ob die hier geschilderten Phänomene eine Erweiterung unseres physikalischen Weltbildes zur Folge haben können. Die einzige Möglichkeit, hier zu weiteren Aussagen zu gelangen, besteht darin, mehr Versuchsergebnisse zur Verfügung zu haben.

Jean Z. SZILI

ZPE Extraction Circuit

---

perso.wanadoo.fr/quanthommesuite (31 January 2005)

Free Energy Electronic Circuit

by

Zoltan Szili

email: p_baril@sympatico.ca

Introduction

By publishing this very simple circuit, I would like to give the amateurs, the occasion to prove that the electric extraction of power of the vacuum exists indeed. The goal of my letter is to make known my work and to help to develop quantum generators for the use of people and industries. I decided to make public a first circuit, and the amateurs will be able to try out it. “

My name is Jean Z. Szili. All my life, I worked in scientific research. For seven years, I have been retired.

I lived thirteen years in France. Five years in Lyon and eight years in Paris. In Paris, I worked at the University of Orsay in Plasma physics. I was born in Hungary. I emigrated in Canada (Quebec) in 1969 and I found work with the Institute of Search for Hydro Quebec in the field of scientific research. I remained twenty-eight years until my retirement there.

One day, at the restaurant of the institute, I had sat with a table opposite two engineers and their guest, specialists in the transformers. I listened to the conversation, and the engineers said to their guest, that they could calculate the parameters of the transformers with an accuracy of 0.1%, but which they always find 2% excess electric output. This surplus of electric output remains unexplainable while taking account of ohmic losses etc

I left the restaurant by thinking that these 2% of power in excess could come from an unknown source.

A few years later, I took note of the theory of the Zero Point Energy (ZPE). I supposed that it should be possible to extract part of this phenomenal energy. Since my retirement, I work intensely to find circuits electronic which could extract from the ZPE. Quickly, I left side the work of laboratory for computer simulation, in order to accelerate my work. I tested thousands of circuits before finding one and then several of these "over-unity" circuits.

Working method

When an unknown field is explored, one must use the empirical groping. Gradually, one learns how to know this new unknown world of science and to use this new knowledge to find circuits increasingly powerful.

Currently, I know rather well how to extract the ZPE. The power of my circuits goes from a few milliwatts to more than one hundred kilowatts. These circuits must be fed to function, but at the exit of the circuits, the profits of power (COP = energy of exit/input) can be very high. The profit or COP can be 2, 10, 100, 1000 and even more.

In these simulations, I always used electronic components existing in the trade. That can facilitate the realization of these circuits at the laboratory. This work however remains to be made.

First of all, this circuit was developed on a simulation program on computer. What makes it possible to carry out simulation, it is the Jiles-Atherton Model of electromagnetism. This model was designed to respect experimental reality and not the law of conservation of energy. I cannot give of guarantee with regard to the correct operation of this circuit, but until proof of the opposite, let us make confidence with simulation. This program is used everywhere throughout the world in the electronic and physical laboratories. It is very close to experimental reality even if in 99.999% of the cases out of 100 energy is preserved. "

The Mechanism of extraction

"There are special conditions so that there is extraction of energy of the quantum fluctuations of the vacuum.

The mechanism of extraction, in my opinion, is based on ferromagnetic resonance. The free electrons exchange energy with virtual electrons of the vacuum. Normally this exchange is perfectly symmetrical. Result: No the extraction of energy.

Moreover, the electrons are fermions, and in quantum mechanics, two electrons cannot be in the same state.

It results a very broad dispersion from it from the ferromagnetic frequency of resonance, which one could call semi-collective. This resonance is between a few hundred MHz and some GHz. Nevertheless, the circuits function at a frequency lower than one MHz. On the other hand the circuit must be built like a functioning circuit at least with 25 MHz. It is necessary to avoid the loops, to use component adequate etc

In these circuits, it is necessary to use special methods to make the energy exchange asymmetrical. In this case only, there will be an extraction of energy.

By publishing this first circuit, my goal is to stimulate research ZPE. Especially I think of the amateurs.

A news concerning my research: I think of having found a law physical, connecting the electrical current in a reel (as used in the circuit sent) and the inductance of the reel. This relation running and inductance seem fundamental in the extraction of the electric output. This relation is reciprocal. A current fluctuation varies inductance and a variation of inductance varies the current.

When the electrical current increases, that made decrease inductance, and a reduction in inductance makes amplify the current… and so on. It is the effect of avalanche. This reduction in inductance has a certain limit determined by the electronic circuit. Once the stop of the avalanche, the process is reversed. Inductance increases and that made decrease the current…

and so on. This return takes less time, because there is no extraction of electric output of the vacuum during this return. Normally, because of the electric losses, the avalanche does not start again without stimulation (ex: a pulse exceeding a certain value).

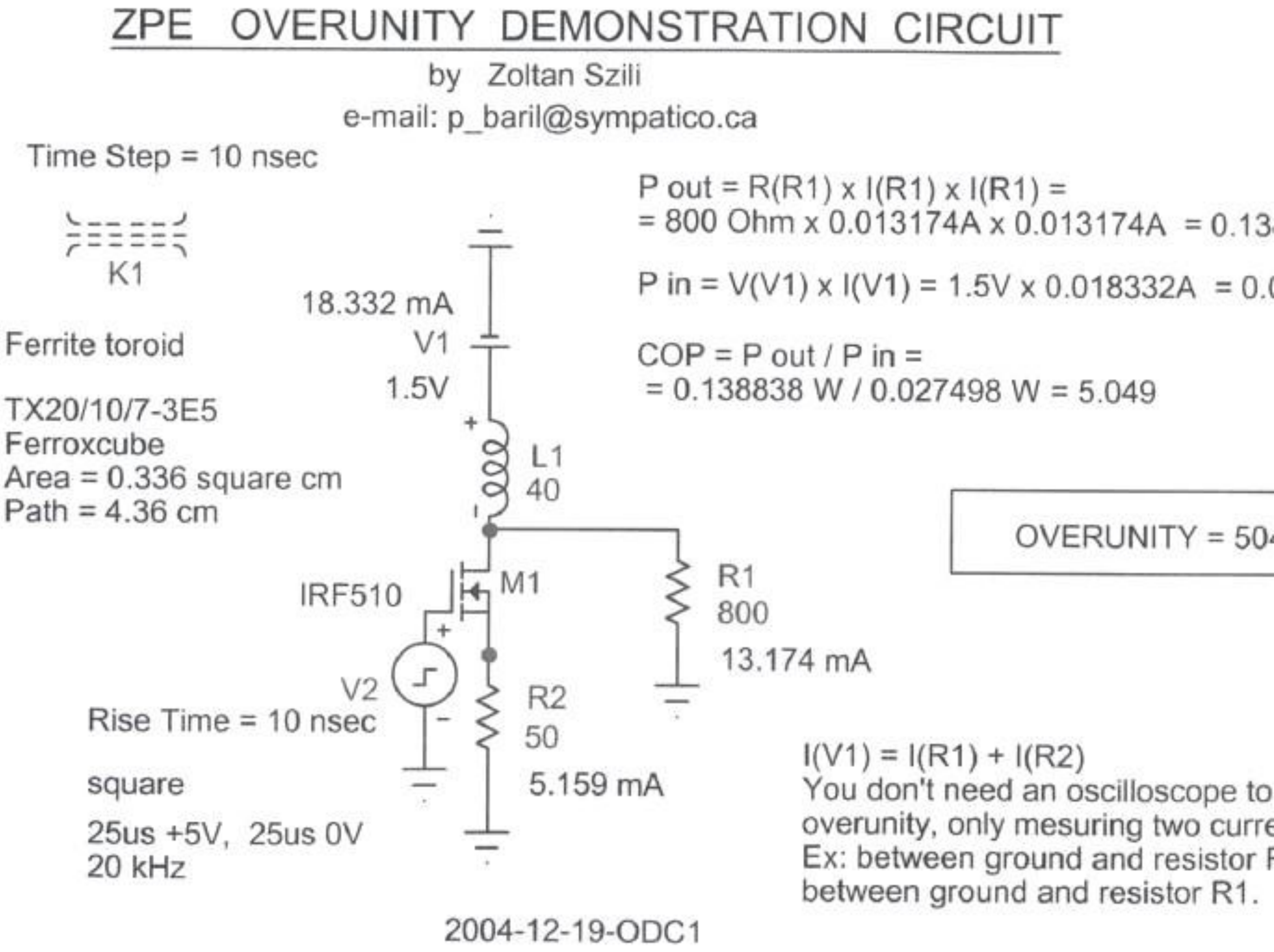
The physical formula of this relation is as follows:

I (L1) = (K1/L (L1)) - K2 or I (L1) is the current one circulating in the reel and L (L1) is the inductance of the reel.

K1 and K2 are two constants (invariable) depend on the circuit components.

By the adjustment of the constants K1 and K2, the curves of the current and inductance are practically identical.

For other circuits, the formula could change, but what is important, it is that the relation running and the reverse of inductance should remain valid. “


ZPE OVERUNITY DEMONSTRATION CIRCUIT

by Zoltan Szili

e-mail: p_baril@sympatico.ca

Time Step = 10 nsec

P out = R(R1) x I(R1) x I(R1) =
= 800 Ohm x 0.013174A x 0.013174A = 0.13

P in = V(V1) x I(V1) = 1.5V x 0.018332A = 0.0

COP = P out / P in =
= 0.138838 W / 0.027498 W = 5.049

OVERUNITY = 50

I(V1) = I(R1) + I(R2)
You don't need an oscilloscope to
overunity, only mesuring two curre
Ex: between ground and resistor
between ground and resistor R1.

2004-12-19-ODC1

The Electronic Circuit with Free Energy of Mr Zoltan Szili

by

J.L. Naudin

“This circuit is quite simple seemingly, but to succeed in making it function, it should be taken Draconian precautions. It is true, that it functions at a relatively low frequency of 20 kilocycles. On the other hand, the signal of the generator of impulse must be a signal square, positive, with a boarding time of 10 nanoseconds of 0 volts to + 5 volts.

The simulation indicates very clearly, which if the boarding time of the square signal is slower than 10 nanoseconds, the extraction very quickly decreases and is cancelled completely between 50 and 100 nanoseconds.

Simulation also shows that a stray capacity, at the point of connection of the transistor (M1), inductance (L1) and the resistance of exit (R1) of a value of 100 picofarads towards the mass, completely destroyed the extraction (this capacity of 100 picofarads perhaps capacity of a probe of oscilloscope).

Parasitic inductances can also prevent the extraction, if it exceeds 10 microHenries.

For the assembly of the circuit, it is necessary to minimize the loops, as if the circuit operates at 25 MHz

In fact the element of extraction is the toroidal ferrite of inductance (L1). "

Diagram and measurements

"Not need for an oscilloscope to prove it on unit: it is enough to measure 2 currents ex: between the ground and R2 resistance, and between the ground and R1 resistance"

Further information at March 10, 2005

Here answers and some councils given by Mr. Zoltan Szili

The number of turns: 40

The diameter of the wire: 0.3 mm or more.

The core is of form annular and square section (5 mm X 7 mm). Dia ext.: 20 mm.; Diam. int: 10 mm; Épaisseur: 7 mm.

The sectional surface specified by ferroxcube is 0.336 cm square. (AREA = 0.336)

The course of the magnetic field is 4.36 cm (PATH = 4.36). Effective circumference for the magnetic field.

The annular form ensures, that the magnetic field is closed again. Very important (GAP = 0).

The magnetic permeability of ferrite 3E5 is 8000.

The electrical current in the reel must be 15 to 20 my minimum to be close to magnetic saturation.

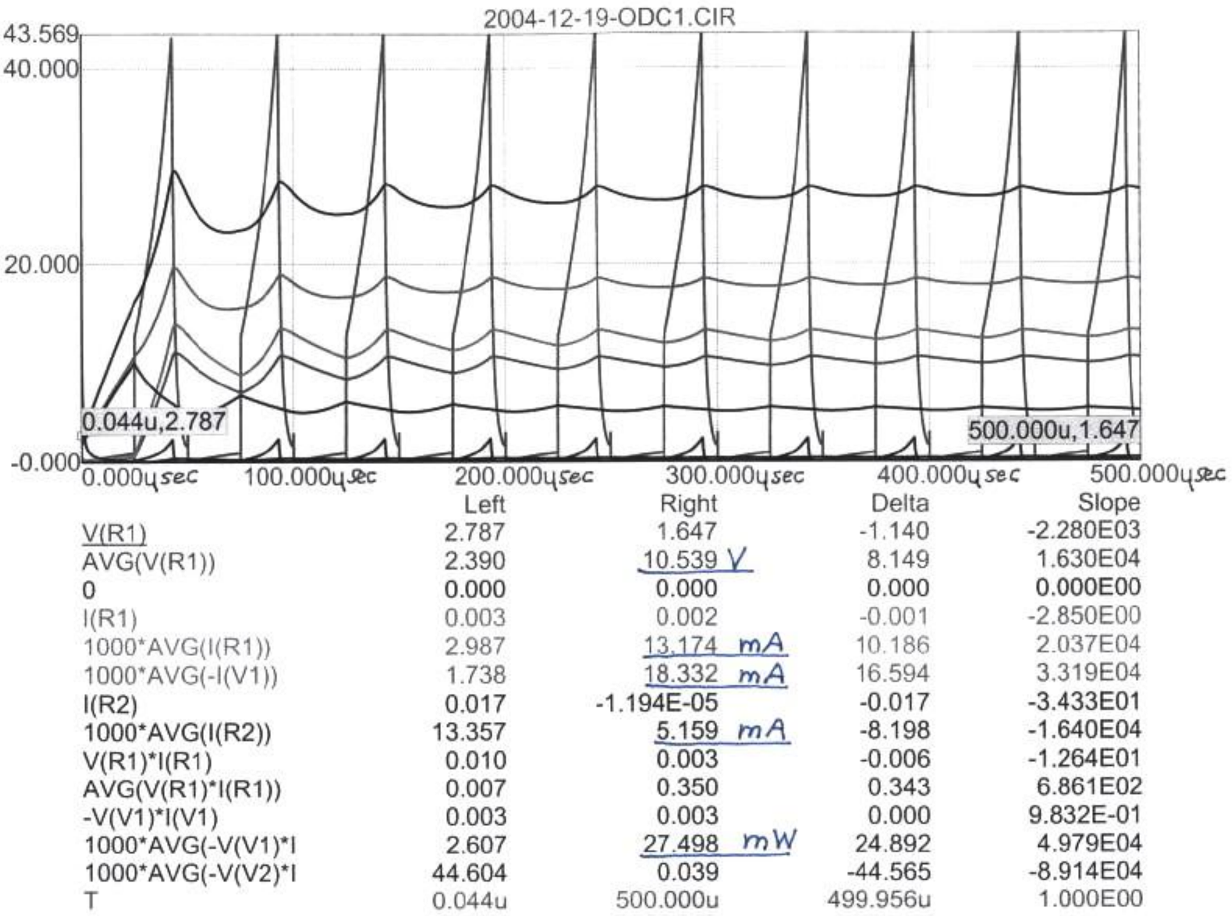
It is the nonlinearity which makes it possible to extract from the free energy.

Very important: The circuit must be built like a circuit of 25 MHz. (ferromagnetic resonance is between 20 MHz and 10 GHz)

Transistor DNMOS FET must be IRF510.

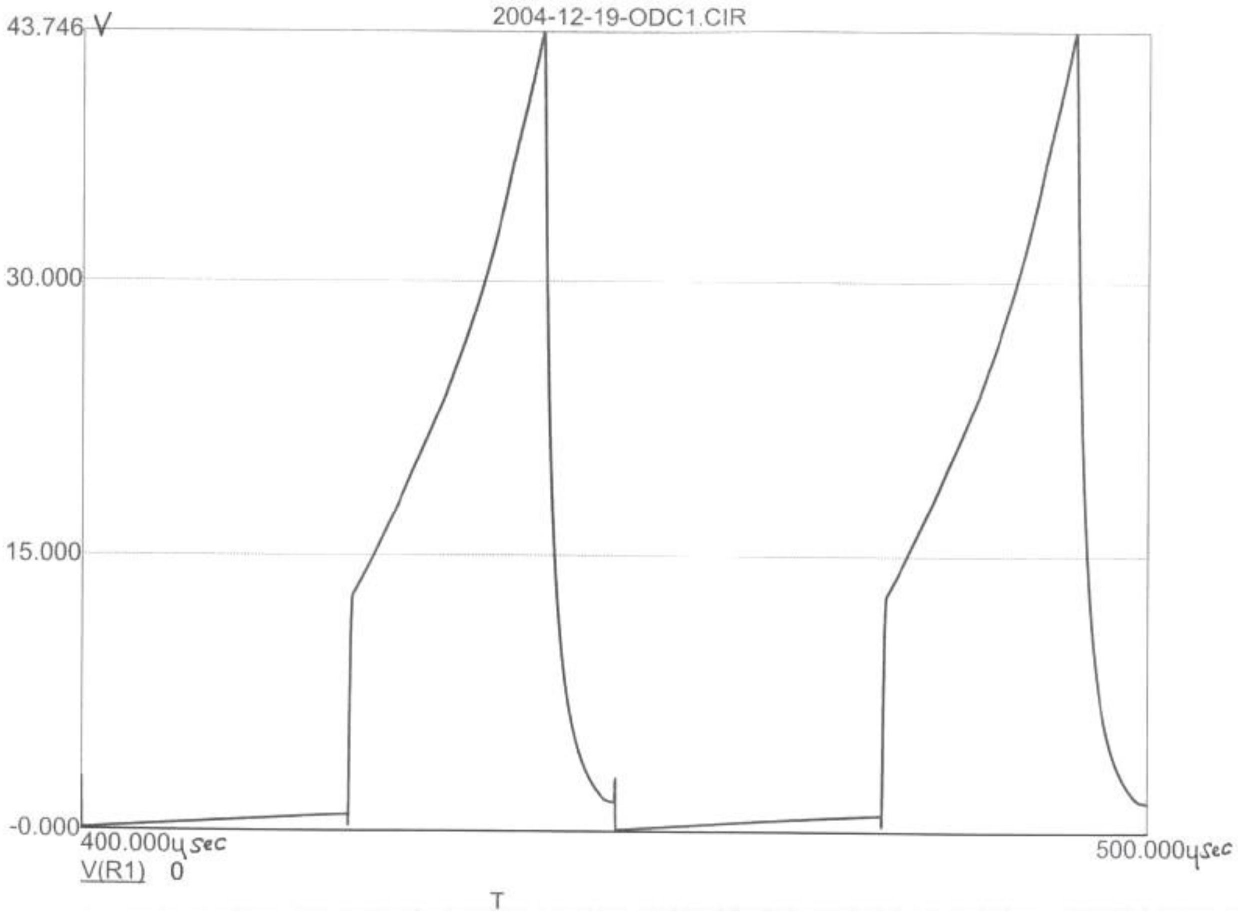
Other ferrites have few chances to function.

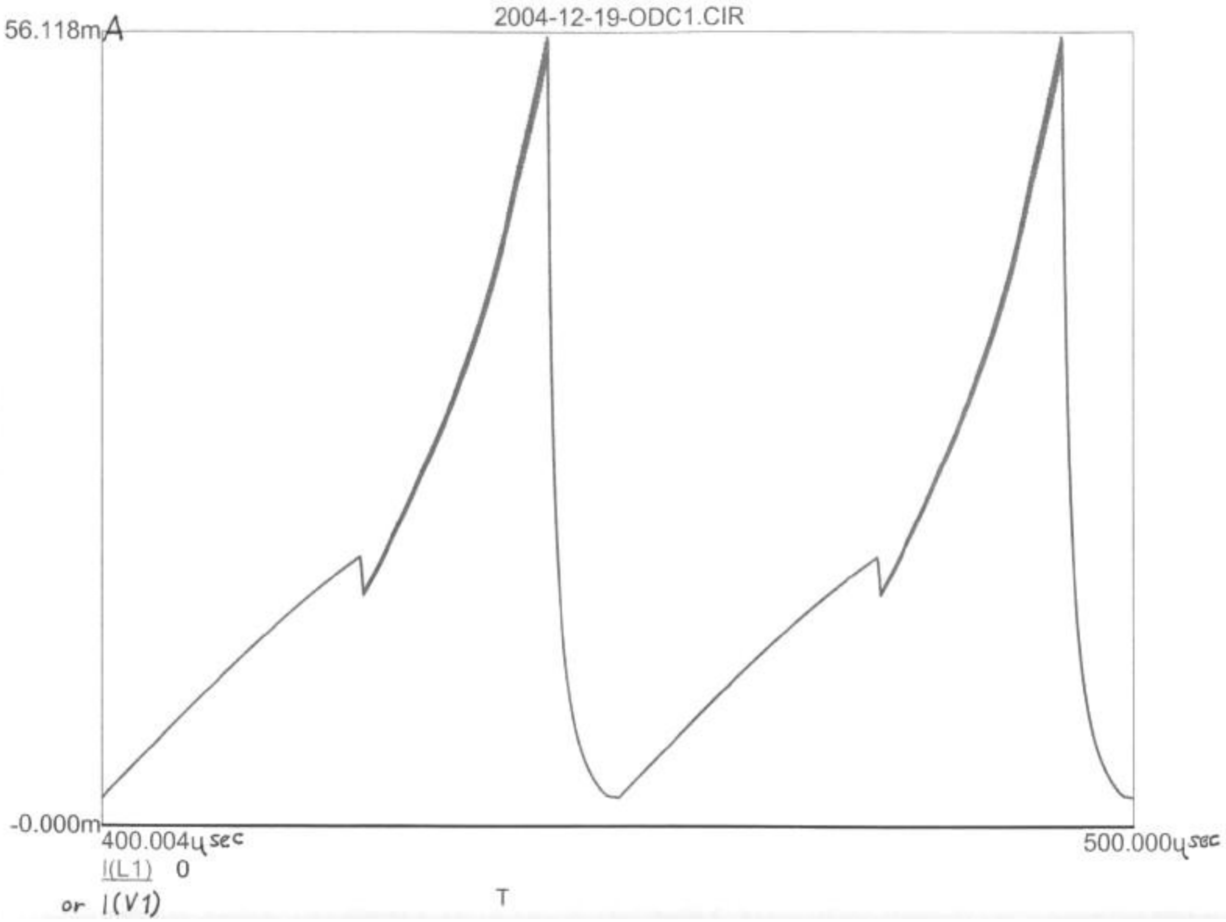
(FERROXCUBE TX20/10/7 with magnetic permeability of 3E5) was announced like difficult to find, certain suppliers the proposer in France by 1500 parts, even to 1 euro one, that done a little too many expenditure for a small assembly.

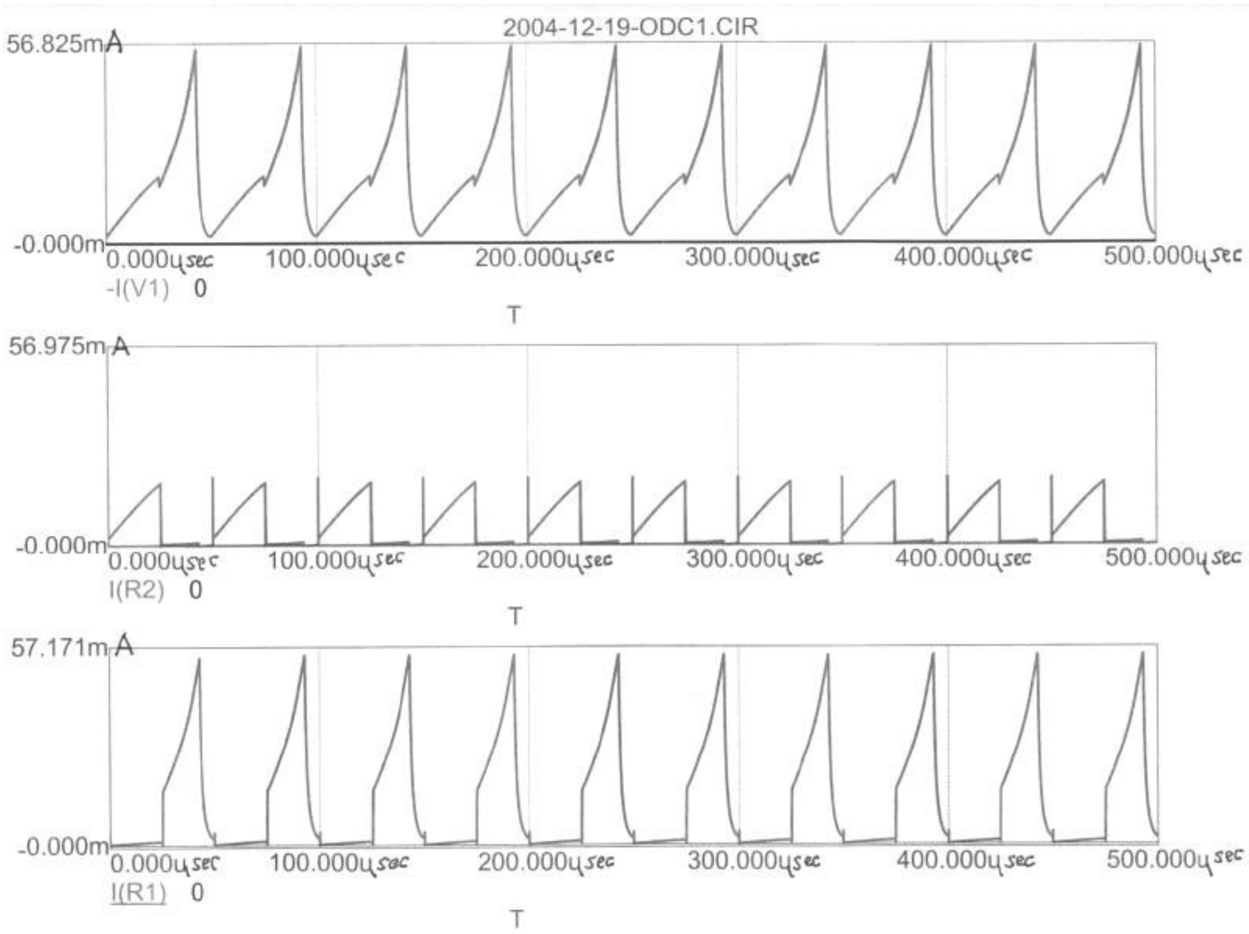


2004-12-19-ODC1.CIR

	Left	Right	Delta	Slope
V(R1)	2.787	1.647	-1.140	-2.280E03
AVG(V(R1))	2.390	10.539 V	8.149	1.630E04
0	0.000	0.000	0.000	0.000E00
I(R1)	0.003	0.002	-0.001	-2.850E00
1000*AVG(I(R1))	2.987	13.174 mA	10.186	2.037E04
1000*AVG(-I(V1))	1.738	18.332 mA	16.594	3.319E04
I(R2)	0.017	-1.194E-05	-0.017	-3.433E01
1000*AVG(I(R2))	13.357	5.159 mA	-8.198	-1.640E04
V(R1)*I(R1)	0.010	0.003	-0.006	-1.264E01
AVG(V(R1)*I(R1))	0.007	0.350	0.343	6.861E02
-V(V1)*I(V1)	0.003	0.003	0.000	9.832E-01
1000*AVG(-V(V1)*I	2.607	27.498 mW	24.892	4.979E04
1000*AVG(-V(V2)*I	44.604	0.039	-44.565	-8.914E04
T	0.044u	500.000u	499.956u	1.000E00


2004-12-19-ODC1.CIR
43.746 V
30.000
15.000
-0.000
400.000μsec
500.000μsec
V(R1) 0
T


2004-12-19-ODC1.CIR
56.118mA
-0.000m
400.004u sec
500.000u sec
I(L1) 0
or I(V1)
T



Bertil WERJEFELT

Magnetic Battery

http://www.geocities.com/area51/shadowlands/6583/project117.html
[Excerpt]

A New Physics for a New Energy Source

by

Jeanne Manning

BERTIL WERJEFELT AND THE MAGNETIC BATTERY-GENERATOR

Bertil Werjefelt sports a Hawaiian suntan because the islands are his adopted home, but he has little time for the beach. Consulting on aviation safety, overseeing a small corporation, and writing technical papers make up only part of his life. Werjefelt has also been working on a magnet-energy device for several decades. A representative of the Sumitomo Corporation who visited Werjefelt's manufacturing facility said that the invention could be "the most important discovery this century."

Werjefelt was educated in his native Sweden and then came to the United States in the early 1960s. He furthered his education in mechanical engineering at both the University of Utah and the University of Hawaii. He now heads a research and development group, Poly Tech USA, that devises safety equipment for airplanes' such as a system that allows pilots to see the flight path and vital instruments regardless of how much smoke is in the cockpit.

A New Device From Old Concepts

In the 1970s, Werjefelt was one of many people who became concerned about the problem of fossil-fuel pollution. So he used his engineering background to create an energy invention - a generator powered by energy extracted from magnetic fields.

Standard generators, which use magnets, are subject to a problem known as magnetic drag. Drag is a residual magnetism that slows the spinning of the rotor, the part that either moves the magnets past an electric coil or the coil past the magnets, depending on the generators design. Werjefelt improved the standard generator; he added a special spinning system that cancels magnetic drag by counteracting it with the force fields of additional magnets. The result is a generator that puts out more power with the same input.

That raises a question: Where does the excess energy come from? "I don't know," Werjefelt says. "It could be [space] energy, or something we don't even know about."

Werjefelt's experimental models have not yet evolved into the Remanufacturing stage they have only produced more power output than input for several minutes at a time. But results are impressive enough to keep him going. For example, at one point his generator has shown **160 watts input and 450 watts output**, or almost triple the power. He believes his crew has solved some of the most troublesome technical problems and that magnetically powered electric generators could be available for everyday use within a few years.

Some onlookers in the new-energy field are as impressed with the scientific paperwork Werjefelt has done as they are with his experimental models. After he came up with the design, Werjefelt realized that he would need to explain the results in order to get a patent. He would also need to convince a skeptical scientific community.

So Werjefelt dug into the physics literature and found evidence to Support his claim. He used this evidence in a 1995 lecture at MIT to argue that standard science's teachings on magnetism have been incomplete from the beginning, and that as a result, the scientific community declared early on that it was impossible to use magnetism as an energy source. The other fundamental forces in nature nuclear physics and gravitation have been harnessed in the forms of nuclear power plants and hydroelectric dams, but science has been blind to the possibility of using magnetism as a source of power.

In general, though, Werjefelt refuses to become caught up in what he calls "paralysis by analysis." He is more interested in proving that his device works. "Look at it as a quantum leap in the energy field," he says, "like the leap from slide rulers to handheld electric calculators."

Corporate Interest From Japan

In 1990, Werjefelt sent a notice to large corporations such as General Electric and Westinghouse in the United States, Siemens in Europe, and Hitachi and Sumitomo in Japan about his discovery Most of the replies were, "It is not possible." Others thanked him and said, "Call us when the patent is issued."

It turned out that the Japanese were very interested in magnets and energy. In October 1993, Japanese television aired a program, The Dream Energy, in which Japanese scientist Terohiko Kawai discussed a device similar to Werjefelt's.

Well-funded Japanese research teams have engineered this discovery into reliable units for existing motors. Werjefelt spent two days with an official from Sumitomo and learned that the Japanese motors are running for hours, days, weeks. Japanese industrialists are switching over to the new units, which will use about half as much fossil fuel as existing motors. For example, the television program showed a refrigerator, a vacuum cleaner, and other common appliances with such motors.

Werjefelt, on the other hand, is more interested in producing electricity. He estimates that if power plants are built using his Magnetic Battery-Generator instead of conventional equipment, they could put out fifteen to eighteen times as much electricity.

---

www.newenergytimes.com/v2/archives/fic/N/N199502s.PDF
February 1995

DISCOVERY OF "VIRTUAL INERTIA"
By Dr. Harold Aspden

...Bert Werjefelt from PolyTech(USA) in Hawaii spoke about his work on magnetic motors and the theory behind them. He reported that experiments have seen output powers of 450 watts electric, with only 150 watts electric going in. Attempts at seif-sustaining have been successful for periods of minutes. The company now thinks it knows how to make a self-sustained operation continue indefinitely and is building one right now, expected to be ready in the next month or two. He showed gorgeous CAD diagrams of the 100-200 watt "self-sustainer" now under construction in Hawaii. He explained how it worked (the precise balancing of repulsion and attraction systems to substantially reduce torque). It was obvious that many, if not most, in the audience accepted his apparently very solid experimental conclusions — even some I would have thought would have left in disgust. Werjefelt put forth his theoretical ideas, which are based, in part, on suggestions made by several (now) Nobel laureate physicists in the 1950s regarding nuclear magnetic spin systems (Pound, Purcell, and Ramsey). Others in the audience were extremely excited by this report, and put forth their theoretical ideas. Werjefelt is a solid mechanical engineer, whose company manufactures pioneering FAA-certified safety equipment. He is deeply involved in aviation safety issues and would have much credibility to lose if he were not on absolutely solid ground with this magnetic energy technology. He has been working quietly in this field for about ten years. On the advice of his patent attorneys, he published his general ideas in an article titled, "Magnetic Battery," in that counter-scientific culture journal, "Extraordinary Science" (Tesla Society), May/June/July 1993, which is available in places like Barnes & Noble book stores. Don't let your prejudices about the Tesla Society fool you, this is a very carefully crafted scientific article with some excellent possible avenues to explain concrete experimental results. The 8-minute video tape of the Japanese developments in this area of "Dream Energy" (Magnetic Energy) "was shown. This had aired on FUJI TV in Japan on October 20, 1993. There are four major corporations involved under MITI aegis: Sumitomo, Hitachi, Mitsubishi, and Matsushita. Werjefelt's company appears to have a very strong patent position in his area, however. The chief engineer of the Aerospace Division of Sumitomo has visited Werjefelt and told him that this discovery is "the greatest discovery of the 20th century."

---

http://users.rcn.com/zap.dnai/zeropoint/magbat.txt

JAPANESE CORP. VERIFIES WERJEFELT'S OVER-UNITY MAGNETIC BATTERIES

February 15, 1994 - The following release is the latest update from Bert Werjefelt's work on Magnetic Batteries, published in Summer Fall `93 Edition of *Electrifying Times*, titled "A New Source of power: Magnetic Batteries."

NOTE: We report Bert's work again because David Hudson's work and Bert Werjefelt's work are revolutionary and is necessary to understand in order to appreciate the advanced technology of superconductivity, over-unity, cold fusion and fusion, antigravity and alchemy. The Japanese appreciated this technology and took Bert seriously

Magnetic Battery Prototype Equipment

This is to inform you of what has happened since the publication of the Magnetic Battery article in Extraordinary Science (a simplified basic explanation of our discovery, which includes an elementary prototype experimental set up, utilizing some of the basic principles) and your subsequent article in Electrifying Times "A New Source of Power; Magnetic Batteries."

Last year we notified many industry leaders in the U.S., Europe, and Asia of our discovery that energy can he extracted from magnetism. With very few exceptions, we were told that it is "impossible" this "appears to violate the laws of physics."

Regardless of the common disbelieves, I am very pleased to inform you that scientists at Meiji and Waseda universities in Japan and researches with Sumitomo Corporation have now proven out point by successfully extracting substantial energy from magnetism. In a recent visit to our facility. Sumitomo told us this is in all likelihood "the most important discovery this century." We are, of course, very pleased that such prestigious academic institutions and one of Japan's largest and most successful industrial concerns, have now also confirmed our findings.

The abstract of Werjefelt's scientific paper in April June '93 issue of Extraordinary Science reads as follows: "The circumstances under which electricity can be derived directly from magnetic materials magnetic fields are discussed and reviewed in the context of the standard formulations of the conservation law. The possibility of extracting energy in the aforementioned manner is in conflict with this law. However, it is not in conflict with a recognized exception to this law; the third corollary of the 2nd law of thermodynamics. This is demonstrated and thereby confirms the possibility of the development of magnetic batteries magnetically powered electric generators/turbines. An elementary description of the process is provided and described in full. It is disclosed the magnetic batteries can maintain permanent electric circuits at normal temperatures and therefore function as macroscopic high temperature superconductors. It is believed that it can be deduced from the disclosures that the time interval from this discovery to the time of applied tehnology and hardware for everyday use can be very short (on the order of a few years). Because of the simple straightforward nature of ths discovery it can easily be placed into development and production with already available knowledge and technology in a mature field of science and engineering."

It is possible that we are on the brink of being able to directly extract electricity from one of the fundamental forces in nature (gravitation, the strong and the weak nuclear forces, and magnetism). "Electrifying Times interviewed Werjefelt to find out more about this potentially very far reaching discovery.

As Werjefelt points out, this discovery is in direct contradiction to the current formulation of the laws of conservation of mass and energy. However, he says, it is not in contradiction to a little known hut scientifically fully accepted exception to the basic conservation laws. Scientists with impeccable credentials (Nobel Prize winner) involved in research on lasers, masers, microwave technology, and atomic clocks, were instrumental in formulating this exception to the conservation laws, which is referred to as "Negative Absolute Temperature". As Werjefelt explains, as early as the 1950s, they had discovered that a crystal of lithium fiuc tide when given a burst of microwave radiation would emit far more radiation than it received. In other words, in some way the crystals functioned as an amplification mechanism. The subsequent explanation for this phenomena was documented by Norman F. Ramsey, Professor Emeritus of Physics at Harvard University, as a consequence of tile actions of the magnetic movement of two distinct spin systems in the atomic structure of the crystals (This I exception to the Conservation Laws is now accepted and noted in the encyclopedias) In other words, as Werjefelt explains, the magnetic energy inherent to the material (crystal) becomes activated by coupling two distinct magnetic spin systems in the atomic structure and can thereby emit vast amounts of energy far in excess of the input energy to the system (crystal) Dr. Wright in a later June/March 1994 "Extraordinary Science" article questions the magnetic battery...

---

http://www.wipo.int/pctdb/en/wo.jsp?wo=1994014237

MAGNETIC BATTERY
WO9414237

1994-06-23
Inventor(s): WERJEFELT BERTIL R L [US]; YONOVER ROBERT N
Classification: - international: H02P9/04; H02P9/04; (IPC1-7): H02P9/04 - European: H02P9/04
Also published as:AU5736994
Inventors: WERJEFELT, Bertil, R., L.; (US). // YONOVER, Robert, N.; (US).

Abstract: A method for producing electricity comprises the steps of providing a source of magnetic field (10); providing a system (10 and 26) for extracting energy from the magnetic field, the system having a certain efficiency level; and inputting energy (2E¿f?) to the system to at least compensate for losses from the certain efficiency level, thereby causing the system to operate to generate energy from the magnetic field.

FIELD OF THE INVENTION

The present invention relates generally to method and apparatus for deriving electricity from magnetism. The present invention is representative of many physical systems including the fundamental structure of matter. The field of the invention therefore ranges from the microscopic to the macroscopic. For example, the invention provides an enhanced understanding of phenomena ranging from photon-electron/positron conversion and the population inversions of lasers and other amplification systems to superconductivity with itfs enigmas of pair-bonding and Cooper pairs as well as common conduction and nuclear processes. We also believe guantum physics phenomena may be better understood and possible to manipulate based on the disclosures herein.

BACKGROUND OF THE INVENTION

Current methods for producing or generating electricity have their origin in the primary energy source of nuclear power or in the energy derived from the gravitation field or a combination of both. These forces are fundamental to nature and matter (e.g. the strong and weak nuclear forces and gravitation) . By example, it should be noted that the nuclear forces that are recognized as powering the sun are in turn transmitted to earth via electromagnetic radiation means, to fuel the growth of plants, which later become the source for petroleum. Alternately, heat from the sun create the winds for power, or the same heat lifts the rain ladened clouds to rejuvenate water reservoirs or rivers to drive the combined heat and gravitational cycle of the hydroelectric generation of electricity.

In addition to the previously mentioned primary forces of nature, the fourth, and last one, is electromagnetism. Up until this time, this force, dipolar in nature, has not been thought of as useful for the purposes of a primary energy source other than in the more or less static sense, utilizing the forces of permanent magnets in ballbearings or delicate mechanical suspension systems, or as an exciter in electric generators.

In virtually all applications to date, magnetic fields, whether permanent or electric in origin, are used as conduits or conversion mechanisms for altering one form of power to another, i.e., mechanical to electrical or vice versa.

The inventions disclosed herein will describe how it can be accomplished to directly generate useful energy from magnetic fields by incorporating them so they function as the primary energy sources as well as the conduits. In other words, where electromagnetis functions in whole or in part as the primary input energy source for the production of electricity. It is puzzling that electromagnetism, another fundamental force of nature, which mathematically follows essentially the same formulation as gravity, would not be used as an energy source in the way that gravity is utilized. Nevertheless, such has been the case until now. Furthermore, although we make extensive use and reference of "negative absolute temperature" systems, this esoteric side of science is necessary to put the present invention into proper thermodynamic perspective. It is also an effort to bridge the well known theoretical gap between thermodynamics and electromagnetism. However, it should also be noted that the descriptions herein serve as an explanation for the internal geometries and dynamics of negative absolute temperature states. These states appear to be derived from an intricately balanced magnetic pairing mechanism between two or more spin systems, ranging from nuclear to macroscopic.

Moreover, to assist in understanding the inventions it is helpful to consider the primary spin systems referred to in the text as analogies, or the electromagnetic equivalents, of the combined heat and gravitational cycles that comprise the primary energy sources for the hydroelectric process. These continuously and oppositely directed forces function as the seemingly inexhaustible energy reservoirs for the hydroelectric process. The same functions can be accomplished electromagnetically.

In view of the preceding explanations, the following background and description of the inventions will be easier to comprehend.

Magnetism and electricity have long been known to be closely related. Despite their close association, a comprehensive understanding of their interrelationship remains elusive. Dirac proposed the existence of monopoles to account for contradictions inherent to the mathematical formulation of electromagnetism. After more than 50 years, the existence of monopoles has not been verified.

The phenomenon of permanent magnetism is in many ways similar to the permanent electrical circuits created in superconducting materials. Since its discovery in 1911 by H.K. Onnes, superconductivity has fascinated and perplexed the scientific community, particularly in regard to the capability of creating a continuous energy loop in apparent contradiction of Lenz's law and the 2nd law of thermodynamics as they are currently written and understood. Lenz's law states that "when the flux through a secondary circuit is changed because of the relative motion of primary and secondary circuits, the direction of the induced current in the secondary is related to the mechanical force between the circuits or as defined by Maxwell: "If a constant current flows in the primary circuit A, and if, by the motion of A or the secondary circuit B, a current is induced in B, the direction of this induced current will be such that, by its electromagnetic action on A, it tends to oppose the relative motion of the circuits." A generator is an example of this law; the currents induced by the relative motion of the field and armature tend to oppose the motion, and it requires mechanical power to keep up the rotation of the generator.

Superconductivity is defined as the ability of certain substances to display perfect conductivity enabling the formation of a permanent electrical circuit, despite the removal of the current-inducing magnetic field. A subsidiary effect of superconductive phenomenon are magnetic levitation/suspension characteristics displayed by superconducting materials (i.e., Meissner effect and magnetic suspension) . The magnetic levitation/suspension process has been attributed to diamagnetism by many researchers. As opposed to levitation, the suspension of a magnet below a superconducting material requires paramagnetic forces to be directed upward towards the superconductor (effectively an "attractive" force) to balance the downward gravitational force. It would appear that paramagnetism and diamagnetism may be at work at the same time in the same system. The ability to suspend a magnet either above or below a superconductor at the same time may on the other hand imply that an electric circuit has been created that is switching at extremely high speeds, consequently switching the magnetic polarity of the field that is created by the circuit. Alternatively, microscopic circuits may be moving in opposite directions, creating the same effect.

Because of the relative ease which measurements can be made on small samples, the absence of resistance and the Meissner effect are the characteristics most commonly measured to verify superconductivity and therefore, the most identifiable to the layperson. However, recent discoveries appear to indicate that perfect conductivity can be realized in the absence of the Meissner effect. Another way of measuring perfect conductivity or absence of resistance in a (superconductive) system can be accomplished by comparing the total energy input relative to the output (i.e., no losses = 100% efficient). This applies to both macroscopic and microscopic systems.

The existence of a permanent electrical circuit (loop) , wherein a superconductive circuit was created and self-maintained (at the requisite superconductive temperature) for over one year with no measurable decay, is now considered common knowledge. Using nuclear resonance to assess the continuity of the created superconductive circuit, no change in field or current strength is expected for times less than (1010)10 years, i.e., a truly perfect and apparently permanent electrical circuit is created. In relation to currently known superconductive processes, extremely high temperature superconducting systems have been ascribed to the processes associated with Neutron stars.

The recent discovery of the Y-Li-Sr/Ba-Cu Oxides, Thallium, and other superconducting compounds (Ln2.?Ce?Cu04.y (Ln=Pr,Nd,Sm)) has significantly raised the operating temperatures required for superconductivity to levels above 90*K (-183*C) , where easily obtainable and inexpensive liquid nitrogen can be employed to cool and maintain the material in a superconductive state. The present goal of superconductor researchers is to attain a room temperature (or higher) superconductor. Ideally, the superconductive temperature should be high enough to permit the extraction of heat or light from the superconductive circuit (e.g., the operating temperature of filaments in incandescent light bulbs) , thereby accommodating common needs in everyday society.

Despite the ease in demonstrating superconductive effects and the corresponding plethora of practical and theoretical investigations, theories that completely account for the phenomena remain unresolved. An early account of superconductivity was provided by Bardeen et al. , wherein it was proposed that electron-phonon interactions were responsible for the superconductive phenomenon. Recent theoretical explanations have proposed that electron conduction interactions resulting from magnetic processes in coupled spin systems produce the superconductive effect. In addition, superconductivity based on current-carrying "electrons" instead of "holes" (areas devoid of electrons) in Cerium cuprates (Ln2.?Ce?Cu?.) has been recently discovered. Citing inconsistencies with the 2nd law of thermodynamics, Gal-Or proposed that a room-temperature macroscopic superconductor may provide the required symmetric/asymmetric link between thermodynamics 5 and electromagnetism (as will be described herein) .

Contradictions to fundamental thermodynamic theorems and the search for explanations, as well as experimental results requiring modifications of the thermodynamic theorems, are not without precedence. Nearly 40 years ago, Purcell and Pound discovered the existence of negative absolute temperatures. Subsequently, Ramsey documented that negative absolute temperatures constitute an exception to the conventional formulation of the 2nd law of thermodynamics, whereby in "special systems", entropy or 15 the degree of disorder can decrease with increasing energy (negative absolute temperatures now constitute an accepted corollary to the 2nd law; elementary descriptions can be found in current encyclopedias) . Ramsey explained that this process may best describe the self-maintained oscillating systems ("population inversions" related to masers/lasers) discovered by Townes and co-workers and Bloembergen, although no internal thermodynamic equilibrium is said to exist within spin systems associated with molecular beam experiments.

It is noted by Ramsey that at negative absolute temperatures, various novel properties can be observed (e.g., attenuating systems become amplifiers, most resistances are negative) . Magnetic Carnot cycles can be made to function at negative absolute temperatures and efficiencies can be very large (T2/T1 > 1) . However, up until now, no means has yet been devised in which a Carnot cycle can be operated between positive and negative absolute temperatures.

OBJECTS AND SUMMARY OF THE INVENTION

It is therefore an object of the present invention to provide method and apparatus wherein magnetic fields in whole or in part are a used as the primary source of energy. It is another object of the present invention to provide method and apparatus that nullify the magnetically indeed drag forces which are inherent to magnetic spin s ams and the generation of electricity.

It is yet another object of the present invention is to provide method and apparatus that achieve high temperature superconductivity states.

It is still another object of the present invention to provide a room-temperature macroscopic superconductor.

Yet still another object of this invention is to provide method and apparatus that provide negative absolute temperature states, as well as transitions between negative absolute and positive temperature states.

It is an object of the present invention to provide a spin system having a stator and a rotor that is cyclically magnetically repelled by the stator.

Another object of the present invention is to provide method and apparatus that use the value and effects of coupling the opposite stable and unstable states of spin systems such that the inherent magnetic and angular momentum (torque) of each system cancel each other.

These and other objects of the present invention will become apparent from the following detailed description.

BRIEF DESCRIPTIONS OF THE DRAWINGS

Figure 1 is a schematic diagram of a normal attractive spin system (NA) .

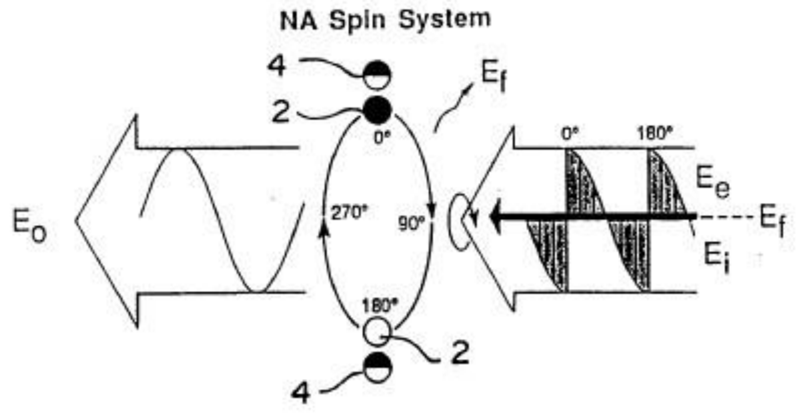


FIG. I

SR Spin System

Figure 2 is a schematic diagram of a special repelling spin system (SR) .

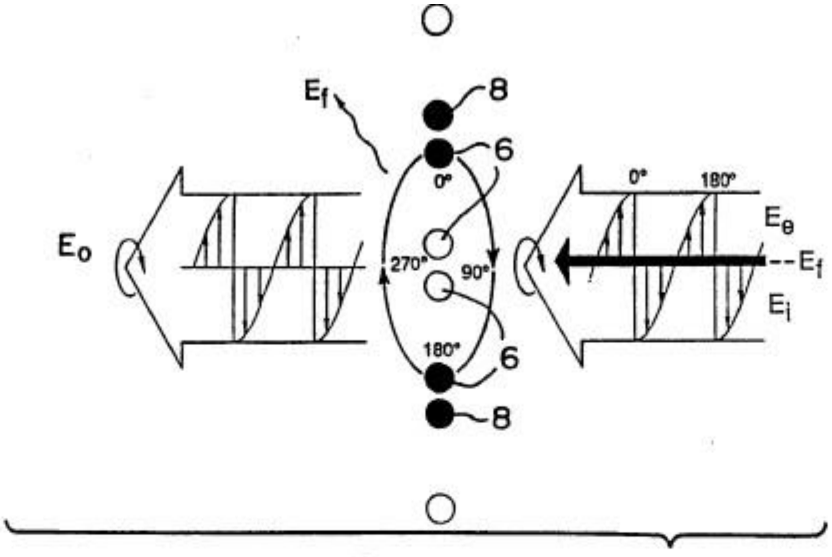


FIG. 2

Figure 3 is a schematic diagram of an inverted normal attractive spin system (NA) .

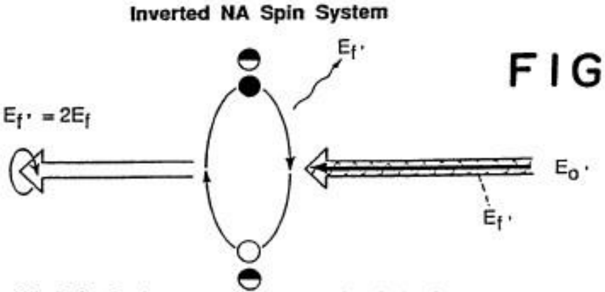


FIG. 3

FIG. 5

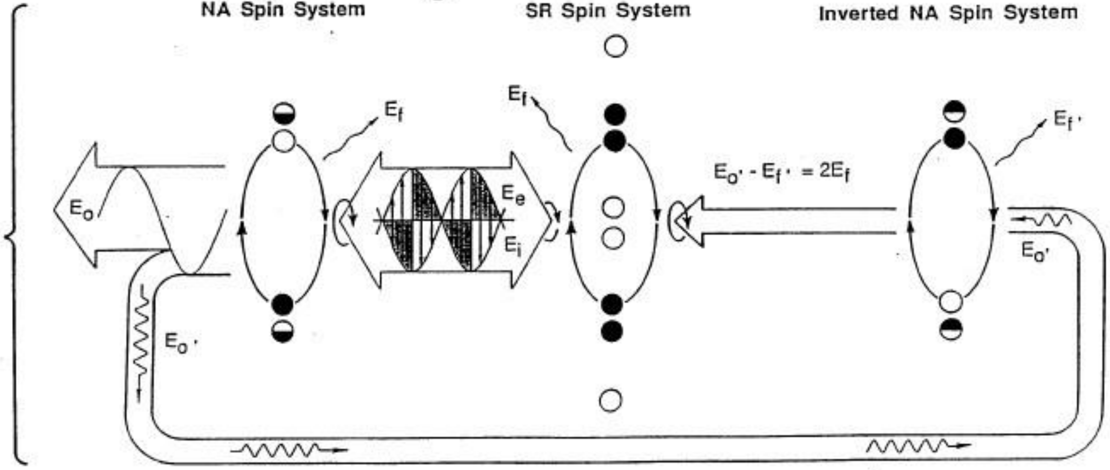


Figure 4 is a schematic diagram of a negative absolute temperature state by phase coupling of the NA and SR spin systems of Figures 1 and 2, respectively.

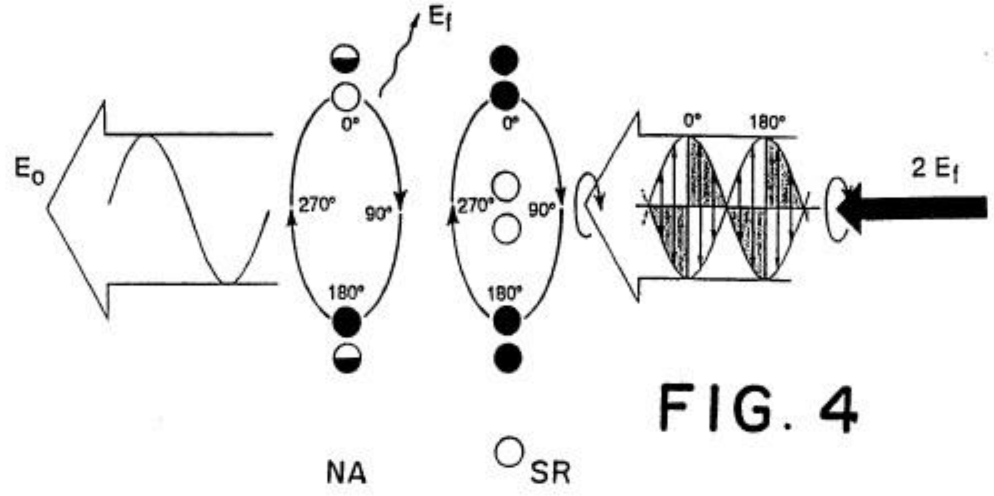


FIG. 4

Figure 5 is a schematic diagram of a continuous positive/ negative absolute temperature state transitions - phase coupled "superconductive" spin system.

Figure 6 is a schematic, perspective view of an electric generator in accordance with the normal attractive spin system of Figure 1.

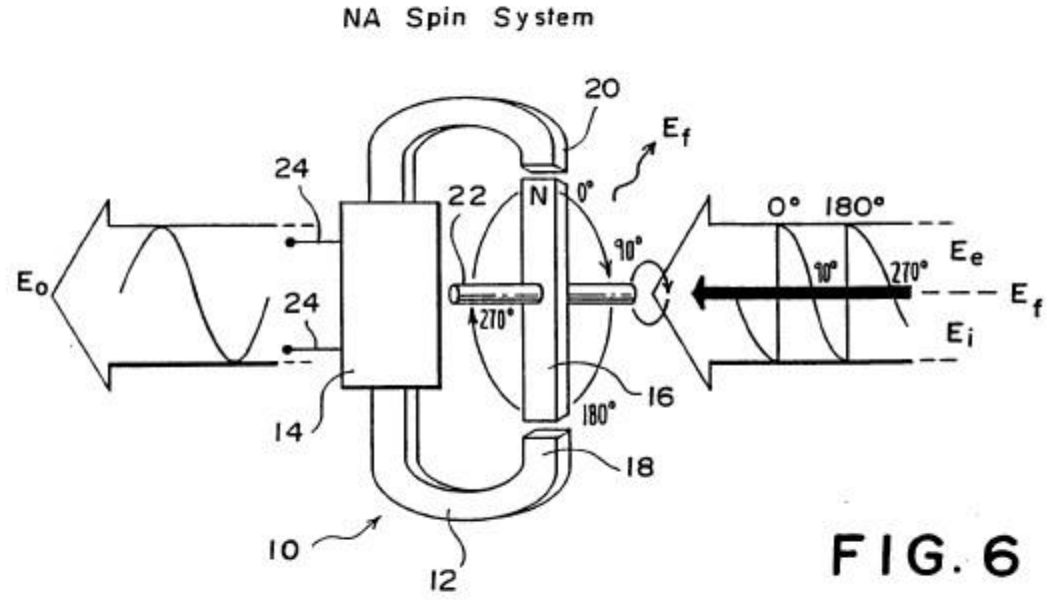


FIG. 6

Figure 7 is a schematic perspective view of a system in accordance with a special repelling spin system of Figure 2.

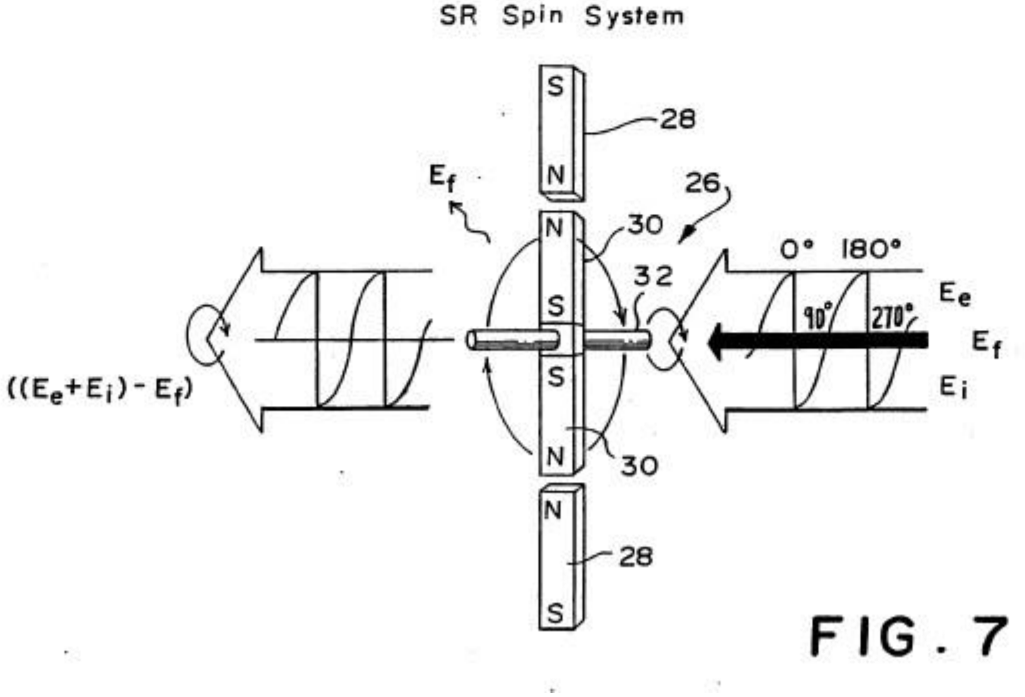


FIG. 7

Figure 8 is a schematic perspective view of Figures 6 and 7 coupled together.

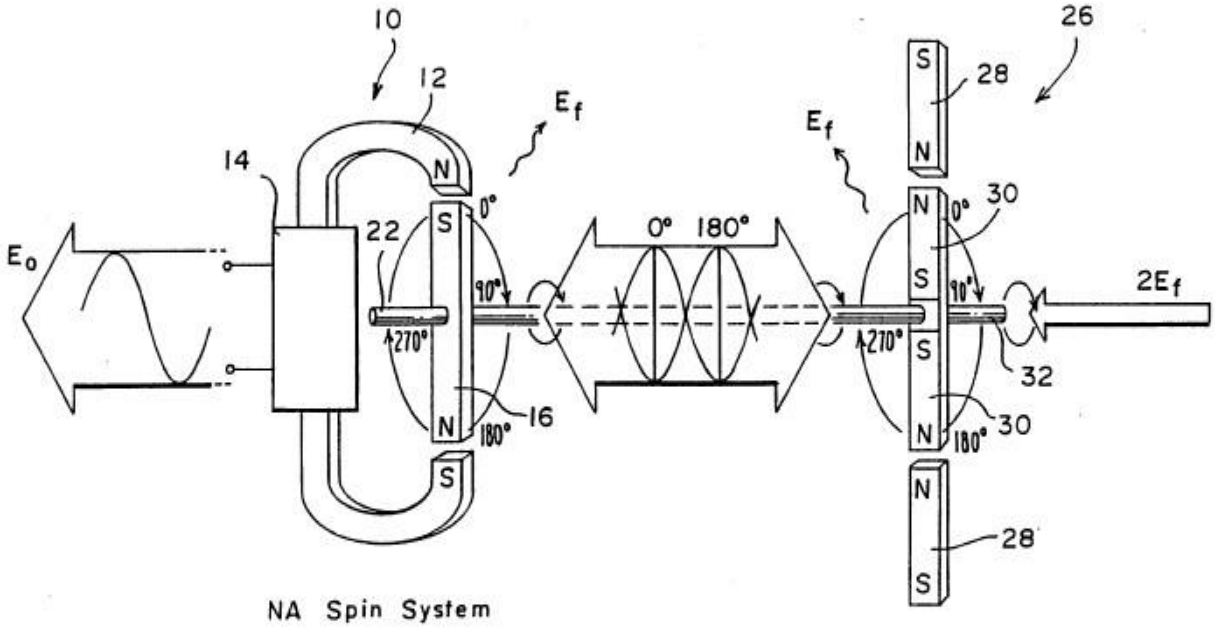


FIG. 8

Figure 9 is a schematic perspective view of an alternative coupled system of Figure d.

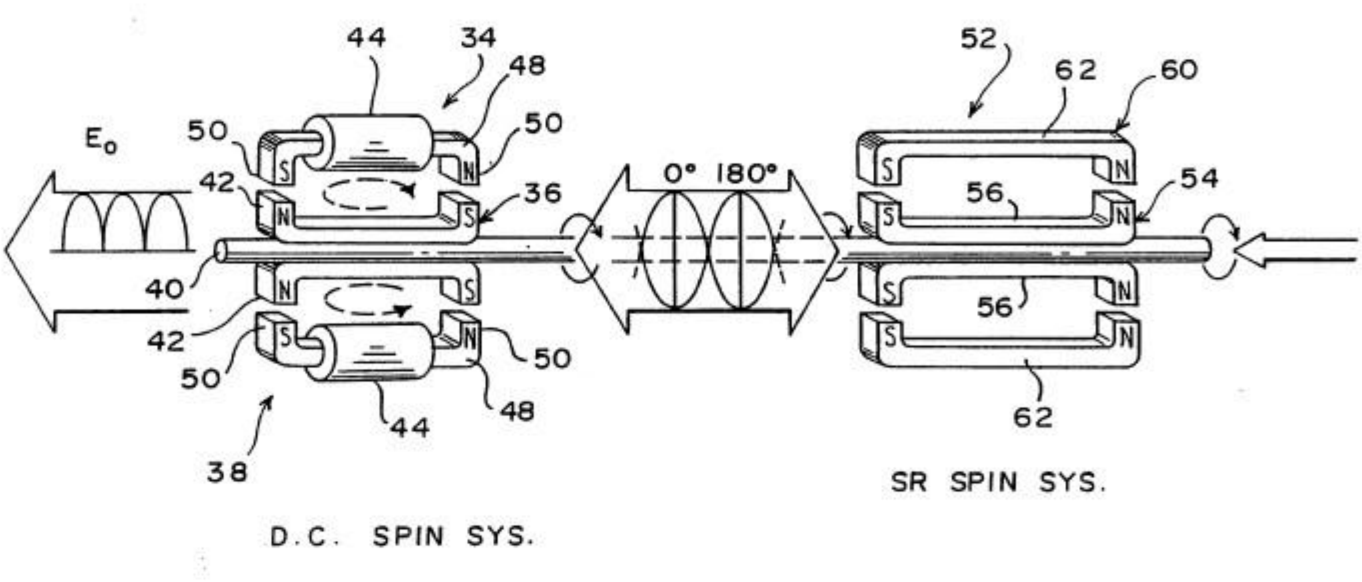


FIG. 9

DETAILED DESCRIPTION OF THE INVENTION

MAGNETIC COROLLARY TO A CARNOT CYCLE

We present a preliminary disclosure of our basic theories and experimental proof whereby magnetism is a direct primary source of electricity by means of unique magnetic/energy gradients. The dipolar nature of magnetism (i.e., the two opposing forces of attraction and repulsion) makes this possible, whereas by analogy, if the singular attractive force of gravity could have an equal and opposite repulsive force, energy could be harnessed directly from gravitation in a continuous, unlimited process.

We describe the manner in which spin systems can operate at negative absolute temperatures as well as between positive and negative absolute temperatures. Intriguingly, this can be accomplished in a functional macroscopic framework as a "superconductor at any temperature", providing the link between thermodynamics and electromagnetism. Our negative absolute temperature system can be described as the "Magnetic Corollary of the Carnot Cycle" or MCS (MCCC) . The system operating between positive and negative temperatures is referred to as the "Expanded Magnetic Corollary of the Carnot Cycle" or EMC1. Operating such cycles permit the extraction of energy from magnetic fields and the establishment of superconductive states at all temperatures.

As stated earlier, creation of a superconductive or permanent electric circuit is in apparent contradiction to Lenz's law since seemingly no "induced" electromagnetic force is required to maintain the circuit. Up until now, the magnetically-induced drag forces described by Lenz's law have never been questioned as being possible to manipulate, nor have the magnetically attractive forces in single or multiple dipolar systems. The current inducing magnetic field (required by

Lenz's law) that appears to be absent in superconductive systems may actually be overshadowed by the dominant magnetic moment forces, but still functioning in one or more of the individual spin systems that comprise the overall MCJ system. We consider superconductive phenomena as transition states between positive and negative absolute temperature. In addition to other beneficial implications, we will demonstrate that this approach provides clarification to the apparent conflict that exists between the observation of superconductive circuits and the ostensible contradiction of Lenz's law.

Negative absolute temperature is explained and defined beginning with the 3rd corollary of the 2nd law as follows:

"A system in a stable equilibrium state can receive but cannot produce work. Although this statement is satisfactory for all ordinary systems, recent developments in the theory of nuclear spins-the spinning of neutrons and protons of the atomic nucleus that contributes to both the angular momentum and the magnetic moment of the atom-have shown that some systems, which will be called special systems, in stable equilibrium states can produce work but cannot receive work.

A special system requires the following characteristics: (1) the energy of its allowed states has a finite upper limit; and (2) it must be coextensive in space with another system that shields it from work interactions that would change its volume or the velocity of its parts. For example, a lithium fluoride crystal may be considered to contain two distinct systems occupying the same space. The first, a special system, consists of the nuclear spins of the atoms of the crystal and has the energy of these spins. The second, a normal system, consists of the same atoms in the crystal, but its energy does not include that of the nuclear spins of the atoms. The stable equilibrium states of the two systems can be identified and distinguished because each comes to equilibrium in itself much more rapidly than they together approach mutual stable equilibrium."

We achieve negative absolute temperature states by unifying two separate spin systems, one "normal" and one "special", to form one coupled spin system. Based on the accepted definition above, to assess whether negative absolute temperatures have been attained, any one of the following conditions apply: (1) Upon removal of the input energy, the angular velocity and the magnetic moment of individual spin systems will decay faster than the coupled system; or (2) Each individual spin system will require more energy to sustain a given angular velocity and overcome the magnetic moment relative to the coupled system; or (3) More energy is required to bring individual spin systems up to a specific angular velocity and/or magnetic moment relative to the coupled system.

A series of simple schematics show the requisites of an elementary MC1 spin system. Following is a description of how negative absolute temperature states are achieved in macroscopic models.

A first spin system ("Normal" Attractive Spin System or NA) , as best shown in Figure 1, consists of an interior dipole 2 (e.g., permanent magnet rotor) and exterior neutral poles 4 (e.g., ferromagnetic stator), which together create a cyclic magnetic circuit (e.g., the basis for a 2-pole electric generator) , whereby the neutral poles 4 assume the opposite polarity of the respective interactive poles of the spinning dipole 2. The magnetic relationship between the interior and exterior poles is an attractive force.

A second spin system ("Special" Repelling Spin System or SR) , as best shown in Figure 2, consists of interior and exterior repelling poles 6 and d, respectively (e.g., permanent magnets on both rotor and stator with "like" interactive repelling pole faces; the other non-interactive pole faces, at opposite ends of their respective dipoles, are isolated from interaction. In more complex system designs (e.g., lattice structures or frameworks) , the isolated poles may actually be utilized as interactive poles. Although permanent magnets are used, a person of ordinary skill in the art will understand that electromagnets or combinations of permanent magnets and electromagnets can be used efficiently, once the technology is optimized.

Each respective spin system revolves through a cycle of magnetic gradients during each 160* of rotation. (Note that inertial mass or the effects of conventional momentum of systems in motion are well known and in fact enhance the performance of the system. Therefore, for the purpose of simplicity of explanation, these forces are not considered in the models described herein) . Starting at 0 °, the NA is in a strong stable state due to the interactive attraction between the interior attractive dipole 2 and the exterior neutral pole 4; energy Ee is required (i.e., "external energy" Ee) to revolve the interior attractive pole 2 toward 90* (akin to a braking system). At 90* (equidistant from the two exterior neutral poles 4) , a weak unstable state exists in the NA due to the attractive forces from the direction of both exterior poles 4. Continuing from 90* to ldO", no energy is required (by virtue of its "internal energy" E- which is inherent to permanent magnets) to revolve the interior attractive dipole 2 because of the attractive forces of the opposite interior/exterior poles (assuming these forces are greater than the friction of the system) . The procedure is repeated through the next ldO* to complete a revolution.

In contrast to the NA, the SR, because of the opposing polarities, experiences exactly the opposite conditions; at 0° , the SR is in a strong unstable state due to the interactive repulsion between the stator and rotor pole faces; no energy is required (as a result of the "internal energy" E,) to advance the interior repulsive pole 6 toward 90". At 90", a weak stable state exists in the SR due to the repulsive forces exerted by both the 0° and ldO" exterior repulsive poles acting on the interior repulsive poles 6 (akin to a braking system). From 90° to 180°, energy Ee is required ("external energy") to revolve the interior repulsive pole 6, due to the repulsive forces of the "like" interior/exterior poles 8. The procedure is repeated through the next ldO" to complete a revolution. A curious observation is that when the SR is considered as an isolated system, it appears to have no reasonable macroscopic or sub-atomic function, except as a "phase-coupling device"; any energy received at the SR is output in the same form, less the frictional losses (i.e., no energy conversion - just losses) . The conventional measurement of electrical degrees cannot be applied in this system (SR) , nor can the conventional dipole moment. This, may be the reason that it has taken so long to establish fundamental theories relating to these overall phenomena.

The negative temperature state (MC3) will be achieved by coupling the two NA and SR spin systems, as best shown in Figure 4. The most important factor in the coupling is that an equally stable state of one spin system is precisely coupled to an equally unstable state of the other spin system ("out-of-phase" coupling, akin to the function of population inversions in lasers) , eliminating or nullifying the resistance or attenuation of the individual spin systems to provide a collective display of zero magnetic moment (magnetic torque force cancellation; assuming essentially the same magnetic torque forces/magnetic moment for each respective spin system) . Conversely, when the two respective spin systems are coupled exactly "in phase", the result is a maximum resistance. Therefore, a continuum in resistance exists from a minimum (zero) at exact "out-of-phase" coupling to a maximum at the point of exact "in-phase" coupling. The range in conductance (lack of resistance) in all materials (e.g., elements and compounds) may relate to the degree of proper phase coupling in the atomic or molecular structure. All of the varying states between minima and maxima in the NA and SR systems have been proportionally coupled; the internal potential energy of one system is coupled to the exterior energy requirements of the other system and vice versa. In terms of magnetic moment (torque forces) , there is no difference between the NA and the SR component, individually both systems act as resistors or attenuators. The "external energy" required to drive the SR can be minimized by altering the interactive pole face geometries (lowering the amplitude of the "external energy" mechanical torque curve) , resulting in a more efficient use of energy. It is interesting to note that a unique magnetic/energy gradient also exists between the magnetically isolated interactive NA and SR spin systems, the gradient being from repelling to attractive. We theorize that two types of individual magnetic gradients are acting in the Magnetic Corollary to the Carnot Cycle (MCCC) : adiabatic positive compression and negative expansion on the SR side, and isothermal negative compression and positive expansion on the NA, wherein "positive" refers to "force required" and "negative" refers to "no force required". The SR is viewed as being "adiabatic" due to the absence of a magnetic circuit between stator and rotor. Conversely, the NA is "isothermal" due to the creation of a magnetic circuit or exchange between the stator and rotor. A third type of magnetic/energy gradient exists between the two spin systems. Ideally, this gradient should be equal to zero and at the same time constitute the most "out-of-phase" coupling that is possible between the two spin systems. This will result in maximum amplification within the allowable energy states.

Moreover, we consider the magnets and their fields (individually and collectively) to constitute the requisite reservoirs to generically describe Carnot cycles. By analogy, it can be said that "fuel" provides the replenishment in Carnot's reservoirs, whereas such replenishment needs are already inherent in MC1 and EMC3 systems because of the fundamental nature of magnetism.

Torque forces are effectively nullified by the precise "coupling" or "pinning" of the contrasting spin systems (Note: this is a contrived state because the systems resist this coupling) . Therefore, by virtue of the definition and as will be shown in our test results, the coupled system appears to be in the negative absolute temperature state since each individual spin system displays distinct magnetically induced torque forces (positive and negative compression and expansion forces) , whereas the precisely coupled MC3 system displays no net magnetically induced torque forces, only frictional forces, even though the attracting and repelling states of the individual respective spin systems are undiminished. In this regard, the MC3 system contrasts with common Carnot cycles (in the positive temperature regime) , which by definition display net expansion and compression forces. To prevent interference problems and aid in balancing the forces of the two spin systems by making dissimilar fields precisely opposite one another (i.e., fine tuning magnetic field gradients) , various pole face geometries, magnetic shielding methods, or the like may be in place within and between respective spin systems.

The general MC3 example described herein is obviously not limited to the specific geometry shown. MC3 can be achieved using a variety of geometric configurations, including variations in size and absolute number of poles, as well as the interactive distances between poles and their relative direction of rotation. The multitude of potential macroscopic configurations are comparable to the assortment of superconducting geometric structures intrinsic to individual naturally occurring elements (e.g., Al, Pb, Sn, etc.) or contrived compounds (e.g., Y-Li-Sr/Ba-Cu oxides). As a result of the required geometric precision of the coupled magnetic spin systems, MC3 's appear to be rarely occurring in nature. However, it is clear that the physiochemical elements required to obtain superconductivity must already be present in the atomic structure of some elements, since only a temperature change is required to achieve the superconductive state in these elements (e.g., Al, Pb, Sn, etc.). By precisely combining two individual attenuating spin systems we have created one overall amplifying spin system. Given certain magnitudes of magnetic forces, the degree of amplification is a direct result of the precision of the balancing of the magnetic torque forces. It is important to note that a system does not have to be exactly counterbalanced to derive some of the benefits of magnetic torque balance.

Coupling of a positive temperature system to a negative absolute temperature system can be achieved by connecting a means for electrical conduction to the MC3 system, resulting in an "open electrical circuit" system that yields an asymmetric energy output with a finite decay time, as best shown in Figure 4.

EXPANDED MAGNETIC COROLLARY TO THE CARNOT CYCLE

(EMC3I In terms of the possibility of producing a regenerative energy system, Ramsey states that:

"T2/T1>1 for negative-temperature reservoirs and the efficiency n is negative and can be very large. At first sight this may seem surprising. It means that instead of work being produced when a Carnot heat engine is operated with heat received at the hot reservoir, work must be supplied to maintain the cycle.

Inversely, it means that if such a Carnot cycle is operated in the opposite direction work is produced while heat is transferred from a colder reservoir to a hotter. If the heat transported to the hot reservoir by this reverse cycle is allowed to flow back to the colder reservoir, there then exists an engine that will operate in a closed cycle and produce no other effect than the extraction of heat from a reservoir and the performance of an equivalent amount of work."

Negative absolute temperature by convention and definition would appear to require the existence of negative mass. We view magnetic dipoles and their fields as manifestations of negative mass. A plurality of which, precisely organized or positioned in motive spin systems as described herein, constitute "negative temperature reservoirs" (after Ramsey) , where it is possible that T2/T1 >1.

In terms of entropy relating to negative temperature systems, increasing states of disorder (entropy) correspond to decreases in temperature, precisely the opposite of the relationship at positive temperatures, where disorder increases with increasing temperature. Thus, to effectively link the positive temperature system to the negative absolute temperature system in a closed circuit manner, means are required to allow "heat" to flow from a colder to a hotter reservoir and in turn flow back to the colder reservoir. With a macroscopic system at negative absolute temperature(MC3) , this is accomplished by coupling a 3rd spin system we call an Inverted NA (e.g., electric motor) and conduction means to the first spin system (NA) , wherein a portion of the internal energy of the MC3 system is converted to positive temperature in the form of electricity (i.e., the first spin system functions as a generator) . In turn, a portion of this "heat" (electricity) is allowed to flow back to the colder reservoir by means of magnetic coupling (3rd spin system-electric motor) to the negative temperature system. This process allows the negative absolute temperature system to maintain its angular velocity and magnetic moment and is sufficient to compensate for the losses inherent to transitions to or from positive temperature states (e.g., friction and resistance; note that there is also friction inherent to the negative temperature state) . Therefore, by allowing a portion of the energy to "flow back", continuous transitions or a superconductive state is attained since the system no longer exhibits a decay time. We call this system an "Expanded Magnetic Corollary to the Carnot Cycle" or EMC3 , as best shown in Figure 5.

In addition to raising the positive temperature output (e.g., electricity), energy flow-back can be confined to the MC3 system to raise the internal energy of the system. Processes from spontaneous fission to thermal combustion may be attributed to such internal energy flow-back processes. Moreover, a better understanding of these processes may explain the perfectly stable superconductive circuits (i.e., no increase or decay in strength over (1010)10 years).

The resultant output from an EMC3 system is an undiminished alternating current, even though the magnetic moment phases cancel each other out. With slight modification (e.g. , geometric alteration) , the system can produce a pulsating direct current.

MACROSCOPIC VERIFICATION OF NEGATIVE ABSOLUTE TEMPERATURE STATE

The difficulty in achieving EMC3 lies in the MC3 portion of the system. The transition from negative to positive temperatures, or the expansion of the MC3 system to communicate with positive temperature systems, is quite simple to achieve. Initially, by definition, any one of the previously mentioned tests comparing energy requirements between individual and coupled spin systems can be performed to assess whether negative absolute temperatures have been achieved. Because of its simplicity, we have chosen to compare the amount of energy required to bring individual spin systems up to a specific angular velocity and/or magnetic moment relative to the collective system. The spin systems can be evaluated independently (i.e., NA or SR individually) or collectively (i.e., NA-SR as a coupled spin system) . We have constructed a simple 2- pole rotating test stand with interactive stator and rotor components which contains two separate spin systems (i.e. NA and SR.) Prior to any testing, the magnetic field was measured (with a Gaussmeter) at each pole face to ensure that the magnetic forces would cancel each other out as much as possible, (Table 1) . Using a dynamometer, we initially measured the (rest to motion) frictional forces of the system and determined them to be 100 grams when the system was inactive (Table 1) . Next we measured the force required to bring the individual spin systems (i.e., NA and SR) into motion from a rest state. The NA required a peak of 1000 grams (friction = 100 grams) to complete 160° revolution, whereas the SR required 700 grams (friction = 100 grams; Table 1). This is the closest we could come to equalling the required motive forces of the respective spin systems in our somewhat primitive experiment. It is interesting to note that the character of the interactive magnetic forces for the NA and SR differ substantially. The attractive forces associated with the NA acted over a more localized area with strong attractive forces at the area of direct pole interface. In contrast, the repelling forces associated with the SR were distributed over a larger area (geometric degrees) , with lower absolute forces at any given point. Variations in the attractive/repelling magnetic field character may require that pole face geometries compensate for these differences by altering the interactive magnetic fields to optimize the force balancing process. Magnetic shielding methods can also be employed within and between respective spin systems to maintain optimal force balancing. Variations in pole face geometries and consequent magnetic field geometries and intensities could be analogous to variations in geometries of atomic and sub-atomic orbitals.

Once the two spin systems were coupled (MC3 state) , a peak of only 300 grams (friction = 100 grams) were required to accomplish the same ldO" revolution compared to the 1000 grams (friction = 100 grams) required to revolve the NA by itself.

Our test results prove that negative temperature states can be achieved in a macroscopic framework. We have met the requirements for a "special system" wherein; the energy of allowed states have finite upper limits (finite magnetic/energy gradients in the coupled system) , the systems are coextensive in space (the most unstable state of one is exactly coupled to the most stable state of the other, as best shown in Figure 4) and at the same time shielded from work interactions ("isolated" yet "coupled" spin systems) , and individual (isolated) systems display longer decay times than the coupled system (or more energy is required to revolve the individual spin systems relative to the coupled spin system) .

Table 1. Test Results of negative absolute temperature states. System Configuration Force (grams) Gauss NA (1st) 1000 600

SR (2nd) 700 600

MC3 (1st and 2nd coupled) 300 600

Friction (1st,2nd,coupled) 100

MACROSCOPIC VERIFICATION OF TRANSITIONS FROM POSITIVE TO NEGATIVE ABSOLUTE TEMPERATURE STATES

By connecting a conduction means (e.g., coil) to the NA (stator) component of the MC3 system (e.g., electric generator) , a rudimentary evaluation of the transition from positive to negative absolute temperatures (i.e., coupled MC3 system) can be made. The coupled MC3 system only requires 300 grams of torque force (friction = 100 grams) to revolve the spin systems 160°, producing a voltage of 100 millivolts. Since this voltage output signal equals the voltage of the NA operating independently (1000 grams) , we can effectively produce the same output energy for 4.5 times less input energy (correcting for friction) . Therefore, the coupled MC3 system in the rudimentary preliminary model tested herein is 4.5 times more efficient than the simple two-pole NA generating device. The voltage output can be manipulated to produce work or heat and at the same time a portion of this (preferably at least proportional to the frictional forces) can be allowed to flow back through the system via the 3rd spin system (e.g., electric motor) , as best shown in Figure 3, to achieve a superconductive state at any temperature (i.e., a portion of the system can be brought up to operating temperatures of filaments in incandescent light bulbs or greater) . However, the magnetic portions of the EMC3 or superconductive system must be maintained below the Curie Temperature (1023°K for Iron), or the magnetic properties will cease. Therefore, it follows that the superconductive circuit as a whole (as described by our model herein) cannot be characterized by a single electric circuit nor a single temperature. Rather, it is characterized by unique combinations of electric circuits, magnetic circuits, interactive magnetic fields; and in terms of temperature, 5 the system as a whole is comprised of several temperature states. Moreover, in terms of resistance, it is clear that the superconductive circuits contain internal resistance networks, even though they as a whole may manifest what appears to be no resistance.

Just as in other superconductive circuits, the activated EMC3 system will not exhibit a decay time as long as output energy is allowed to flow back into the EMC3 system in proportions that meet or exceed frictional forces. When precision balancing of magnetic torque forces is accomplished, the efficiency of the EMC3 system can be optimized.

If the forces required to revolve the EMC3 coupled test spin system had been only 100 grams (i.e., frictional forces only) , then we would have demonstrated 100% balance or "zero magnetic torque". Our test results are therefore most encouraging since we have achieved -78% (i.e., 1 - [(300g(MC3)-100g(F))/(1000g(NA)-100g(F))] of the maximum that is theoretically possible in the portion of our theory that deals with magnetic force balancing.

Therefore, it appears that the EMC3 system can operate in a negative torque mode (i.e., internal (magnetic) energy is used to overcome friction of the system) as shown in the "regenerative" coupled system, as best shown in Figure 5. In addition, the same effect can be achieved by replacing the function of the 3rd spin system by altering the pole face geometries of the SR spin system. As described herein and as best shown in Figure 4, the conversion of magnetic energy into electricity is most efficiently accomplished at near zero or negative torque. This is readily apparent when the diagrammatic representation of internal and external energy is analyzed. For instance, it is clear that Ee from 90* to 180" and 270° to 0°, when diminished in amplitude, will cause the coupled spin system to be in a state of negative torque. Altering the amplitude is a consequence of changing the pole face geometry, wherein the magnetic repelling forces are so directed that they give preference to the direction of rotation to optimize the negative torque states. Controlling the effects of impedance, inductance, hysteresis, and heat losses from resistance (I2R) are important in establishing efficiencies in macroscopic systems. The sub-atomic equivalents must also be considered when determining the susceptibility to superconductive states by certain materials. Internal interference effects from an imbalance of impedance and inductance loads can be reduced or eliminated by conventional load-balancing means. Hysteresis can be completely eliminated as a loss in pulsating DC systems as shown in Figure 4, wherein the ferromagnetic stator poles are not subjected to complete switching from one magnetic polarity to the other. Such generating devices are similar to homopolar generators which were conceived and demonstrated in the early years of electrical research. In sub-atomic systems, heat losses from resistance (I2R) and consequent heat migration may substantially impair sub-atomic superconductive functions. In macroscopic systems, these losses are of less concern as heat migration can be dealt with using conventional engineering techniques (i.e., the effects can be isolated and controlled).

It is clear that there are many precise requirements for positive and negative absolute temperature states and their transitions that must be met. The basic requirements are presented in this preliminary disclosure.

Table 2. Test results of positive/negative absolute temperature transitions.

System Configuration Force (grams) NA (1st) 1000

SR (2nd) 700

Inverted NA (3rd)

Coupled MC3 System 300 600 100

Friction 100

CONCLUSIONS AND DISCUSSION

From a practical standpoint, the Expanded Magnetic Corollary to a Carnot Cycle (EMC3) permits magnetism itself to be a primary non-polluting energy source for electricity. The ease with which practical devices can be accomplished would appear to warrant urgent social, scientific, and commercial attention. Note the macroscopic version of the 3rd (inverted NA-motor) spin systems have already been developed and are commercially available. The 1st and 2nd spin systems (NA and SR) can readily be developed using essentially an extension of the same technology that is applicable to the 3rd.

Up until now, magnetism has been overlooked as a primary energy source and has only been exploited as a means to convert fossil and nuclear fuel (via mechanical energy) into electrical energy or electromagnetic radiation. In light of the aforementioned theoretical explanations and experimental results, it appears that EMC3 systems can represent macroscopic superconductors at all temperatures providing the required symmetric/asymmetric link between thermodynamics and electromagnetism. With present day technical expertise, practical macroscopic systems operating between positive and negative absolute temperatures can now be easily realized, resulting in the highly efficient generation of electricity. It appears that EMC3 systems comprise negative absolute temperature (energy) reservoirs. These reservoirs can be made to function in superconductive generators and magnetic batteries.

The extent to which an element (or material) incorporates requisite spin systems and the optimization of their alignments (e.g., "in-phase" vs. "out-of-phase" coupling) may correspond to the relative degree of electrical conduction or ultimately superconduction (EMC3) that is observed (e.g., a continuum from resistor to semi-conductor to conductor to superconductor) .

Since the existence of negative absolute temperature has been confirmed and accepted (and in light of these disclosures) , it would seem by definition, negative absolute mass should also be recognized in as much as a motive mass is a requirement for the establishment of temperatures (i.e., motion of particles). Negative mass may reside in the atomic structure or the inter-atomic space (both within the nucleus and associated with electron clouds as well as the space between electron clouds) . The quantity and location of negative mass in a particular element may determine its susceptibility to EMC3. By changing the alignment by simple chemical mixing, cooling (compression) , heating (expansion) , electrification, magnetization, or by induced frequency/radiation, the negative mass component can be altered to promote or demote the outflow of energy from "amplification" and "superconductive", or "emission" processes as in MC3 and EMC3 systems.

The dual behavior of magnetized mass (i.e., attraction and repulsion) is inconsistent with the definition of mass in Gravitational Theory where mass only has a singular behavior (attraction) . For many current theorems to remain valid, it would seem appropriate to assign negative mass values to atomic structures and elements and incorporate them into the theorems and a revised classification of naturally occurring elements (e.g., periodic table of the elements).

Analysis of our theories and experiments reveal that a number of dynamic interactive processes, along with spatial displacements and geometries, predicate the efficiency of an EMC3 system. All of these dynamic interactive processes will need to be more precisely translated to their sub-atomic quantum mechanical equivalents.

Although we have described the fundamental principles of constructing Expanded Magnetic Corollaries to the Carnot Cycle (EMC3) , it may be of greater scientific (and social) importance to identify how and why it appears most systems are not EMC3 's and if and how it is possible to manipulate them. Conversely, how can this knowledge be used to manipulate already existing EMC3 systems (e.g. , spontaneous fission) ; perhaps through magnetic or electrical means it may be possible to deactivate the fissioning (EMC3) process. Processes ranging in diversity from combustion and spontaneous fission to conduction and amplification may be directly related to the degree and magnitude in which EMC3 is functioning on the sub-atomic level. Although at first it may seem surprising that the applicability of our theories are so broad, it is justified by the test results and the concomitant proposal of the existence of new, previously undiscovered components or behaviors in the inter-atomic or atomic structures. This is supported by our macroscopic tests and their sub-atomic analogies, as well as the behavior of superconducting elements (e.g., Al, Pb, Sn, etc.). Moreover, the interrelationship of gravitational, thermodynamic, and electromagnetic theories and their bearing on unified field theory development is obviously affected by introduction of any new component or processes in the atomic structure or its surroundings. In addition, now that it is possible to make transitions between positive and negative absolute temperatures, it may be possible to establish the unit ratios between positive and negative absolute temperatures and their corresponding positive and negative mass.

An instructive embodiment only exemplifying the basic principles of the invention will now be described. Referring to Figure 6, a two pole generator 10 is disclosed. The generator includes a C-shaped stator 12 with a coil of wire 14 wound around its intermediate portion. A permanent magnet armature 16 is disposed to rotate between the pole portions 18 and 20 of the stator. As the armature is rotated through its shaft 22, a voltage is generated across the output 24 of the coil 14. The input power to the generator 10 is characterized by alternating external energy Ee and negative internal energy E{, as best shown in Figure 6. The input power also includes power to overcome friction losses within the generator, as generally indicated as Ef.

To reduce the magnetically induced torque or drag forces, a special repelling spin system 26 is coupled thereto. The system 26 includes a stator comprising a pair of permanent magnets 28 and an armature comprising a pair of permanent magnets 30. The magnets 28 and 30 are disposed in such a way that like poles are disposed across each other, as best shown in Figure 7. The armature rotates about shaft 32. One of ordinary skill in the art will appreciate from an analysis of Figure 7 that in order to maintain rotation of the system 26, external energy Ee must be supplied to the system in alternating fashion, as best shown in Figure 7. One of ordinary skill in the art will understand that there is internal potential energy stored in the system 26 at the 0" position, such that the armature will turn without any application of external energy from 0ß to 90". From 90° to 180°, external energy must be applied to the system to bring it to the orientation, as shown in Figure 7 where it attains potential energy. From ldO* to 270", this potential energy is utilized to turn the system 26. From 270* to 360°, external energy Ee is again applied to the system 26. Thus, one can see that the power requirement at the shaft 32 is characterized by alternating external energy and internal energy. Energy to account for friction losses, generally indicated as E , is also supplied to the system 26.

When the generator 10 is mechanically coupled to the system 26 through their respective shafts, a balance of the shaft power occurs, such that only the frictional losses of the combined system must be supplied in order to keep the coupled system rotating and generating power. This is best illustrated in Figure 8.

A person of ordinary skill in the art will understand that a conventional control system (not shown) might be necessary to maintain the proper phase relationship between the generator 10 input power envelope and the SR spin system 26 output power envelope to account, for example, for varying loads connected to the generator and for hysteris in the system. The control system may be implemented electronically or mechanically.

Another embodiment of the system disclosed in Figure ß is shown in Figure 9. A generator 34 has a rotor 36 and a stator 3d. The rotor 36 is secured to shaft 40 and includes a pair of U-shaped permanent magnets 42 disposed along the shaft 40 in a back-to-back fashion, as best shown in Figure 9. The magnets 42 are disposed such that adjacent poles are like poles. The stator 3d includes a pair of coils 44 disposed in intermediate portions of respective U-shaped ferromagnetic magnetic cores 48 with pole portions 50 disposed opposite respective pole portions of the rotor magnets 42.

The generator 34 is mechanically coupled to a special repelling spin system 52, which is similar to the spin system 26 disclosed in Figure 7. The system 52 includes a rotor 54 having a pair of C-shaped permanent magnets 56 secured to a shaft 58. The spin system 52 includes a stator 60 having a pair of C-shaped permanent magnets 62 which are disposed relative to the permanent magnets 56 such that respective opposing poles of the rotor and the stator are like poles.

The input power to the generator 34 is similar to that of the generator 26 disclosed in Figure 6. Likewise, the input power to the spin system 52 is similar to the input power of the spin system 26 disclosed in Figure 7. Therefore, one of ordinary skill in the art will understand that when the generator 34 and the spin system 52 are mechanically coupled together through their respective shafts 40 and 58, cancellation or balancing of the input power to the generator 54 and to the spin system 52 occurs. Consequently, only enough power to compensate for frictional losses of the system are needed to keep the coupled system rotating. Appropriate output leads are taken from the coils 44 to produce an output E0, as best shown in Figure 9.

While this invention has been described to explain the principles in the simplest manner possible, it is understood that it is capable of further modification, uses and/or adaptations of the invention following in general the principle of the invention and including such departures from the present disclosure as come within known or customary practice in the art to which the invention pertains, and as may be applied to the essential features set forth, and fall within the scope of the invention or the limits of the appended claims.

NEGATIVE MASS-ENERGY CONVERSION AND AMPLIFICATION SYSTEM
WO8502303

1985-05-23
Inventor(s): WERJEFELT BERTIL [US]
Classification: - international: H02K53/00; H02K57/00; H02K53/00; H02K57/00; (IPC1-7): H02P9/04 - European: H02K53/00; H02K57/00
Also published as: EP0162104 // AU3830385

Abstract -- Method for manipulating negative mass-energy. This invention manipulates negative mass-energy by providing at least two spin systems (G and M) where at least one of these systems has a larger negative mass than the other. The spin systems are linked together (A) in such a way that energy can be transferred between the spin systems. The spin systems could be a motor (M) and a generator (G) connected by a stator arm (A).

FIG. 1.

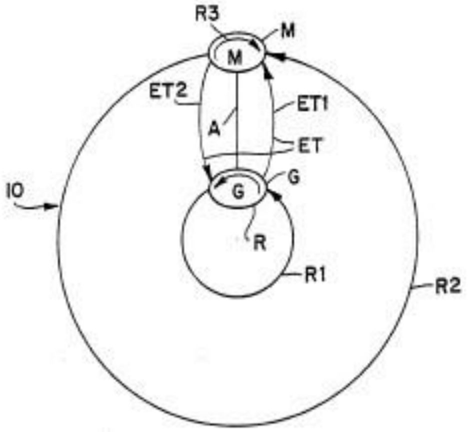


FIG. 2.

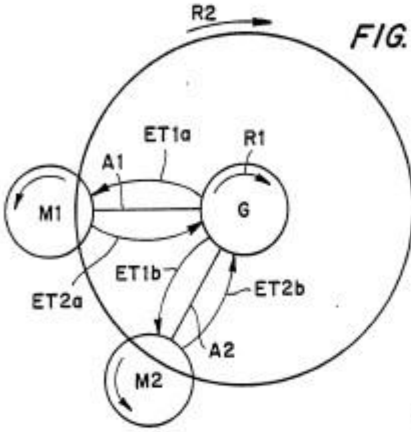


FIG. 3.

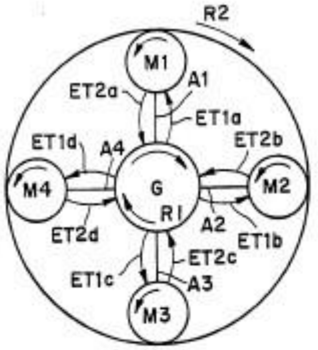


FIG. 4.

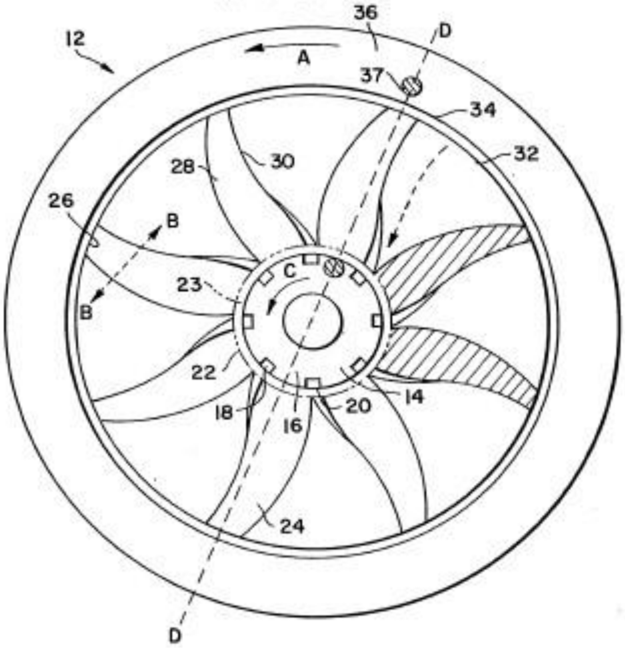


FIG. 5.

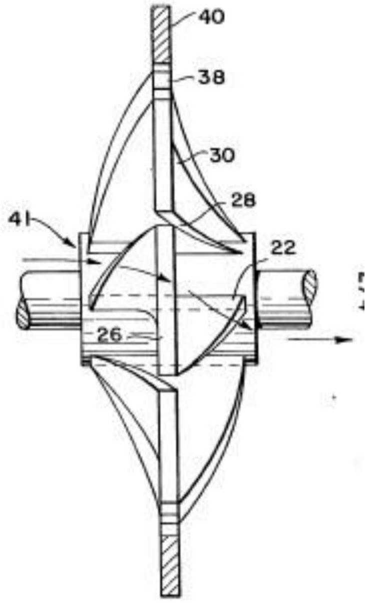


FIG. 6.

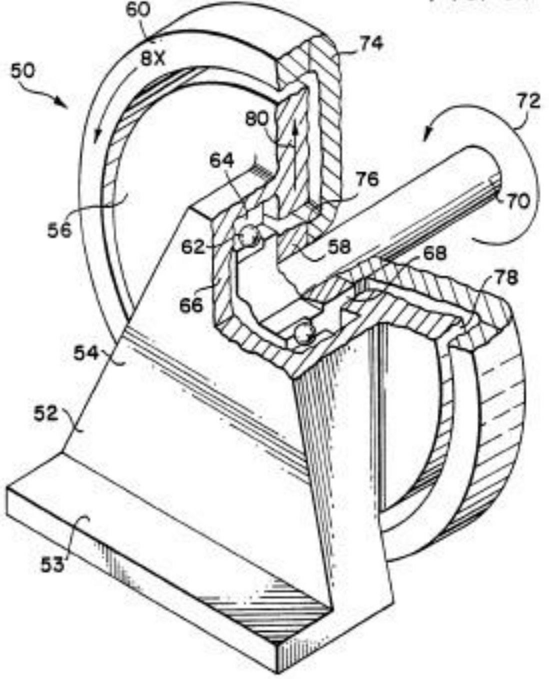


FIG. 7.

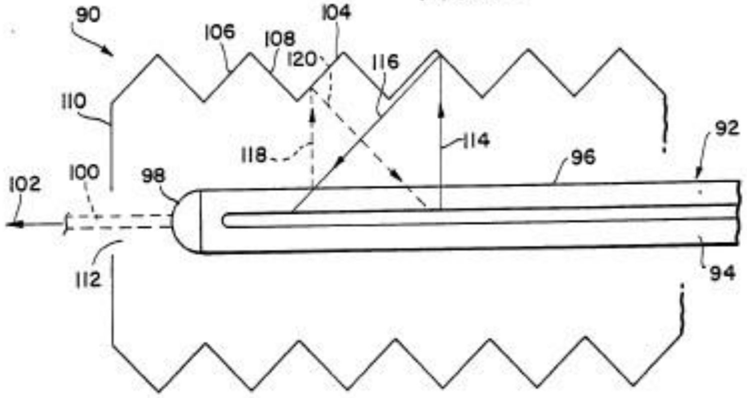
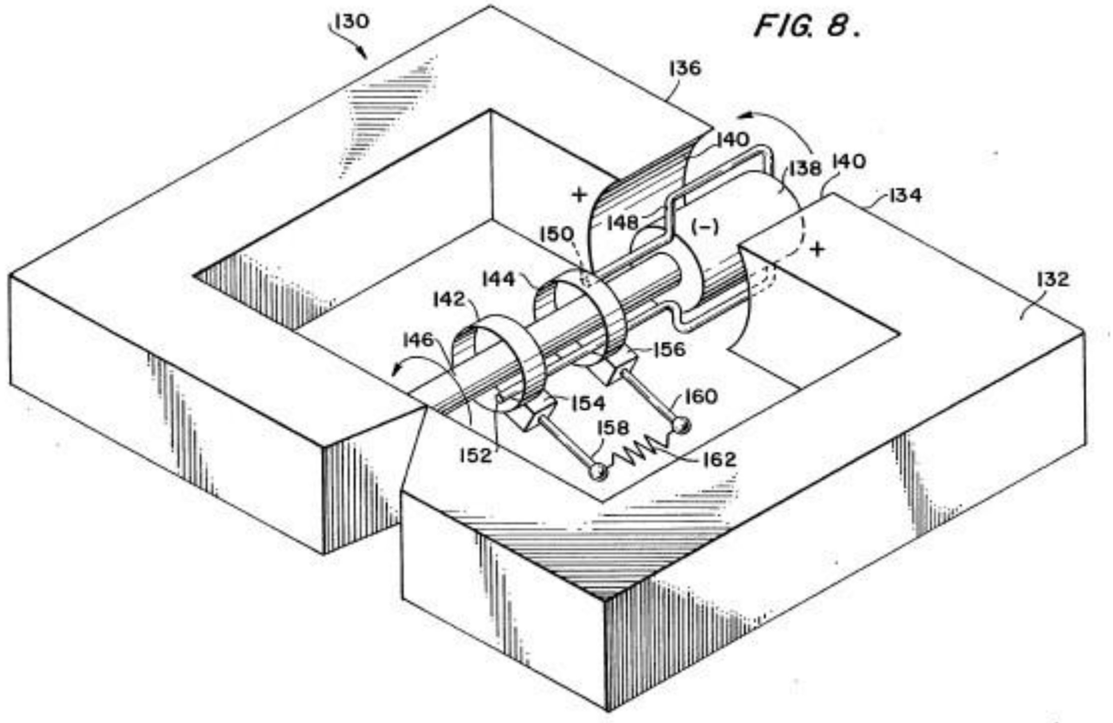


FIG. 8.



---

http://quanthomme.free.fr/energielibre/energie/MG_ReedWerjefelt2.htm

WERJEFELT Bertil

Werjefelt qui est originaire de Suède est arrivé aux Etats-Unis au début des années 60. Il a terminé ses études dans les universités de l’Utah et à Hawaï. Il partage son temps entre la direction d’un groupe s’occupant de sécurité aéronautique R&D *Poly Tech*, et la rédaction d’articles techniques.

Depuis des années, il travaille sur un appareil à énergie magnétique, un système en rotation qui annule le freinage magnétique en le neutralisant avec des champs d'aimants supplémentaires, et produit plus d'énergie qu'il n'en consomme. Un essai a montré 450 watts de sortie pour 160 watts d'entrée.

Werjefelt a découvert dans la littérature scientifique les preuves à l'appui de ses affirmations. Il a donc consigné ses résultats sous forme brevetable et capable de convaincre la communauté scientifique, néanmoins il préfère de loin démontrer que son appareil fonctionne (il existe une vidéo de l'appareil en fonctionnement).

En 1990, il a écrit à *General Electric, Westinghouse, Siemens, Hitachi et Sumimoto*. La plupart des réponses venant des Américains et des Européens étaient du genre : " ce n'est pas possible ", ou " appelez-nous quand vous aurez obtenu un brevet."

Lors d'une conférence donnée au M.I.T., il a soutenu que les enseignements de physique classique sur le magnétisme étaient toujours incomplets et que la communauté scientifique avait déclaré prématurément qu'il était impossible de se servir du magnétisme en tant que source d'énergie.

En octobre 1993, dans un programme télévisé japonais, Teruhiko Kawaï a fait mention d'un appareil similaire à celui de Werjefelt. Des équipes de recherche japonaises, convenablement financées, ont travaillé sur cette découverte afin d'obtenir des appareils fiables pour des moteurs actuels.

Werjefelt a passé deux jours avec un représentant de la société Sumimoto - qui estime à sa juste valeur sa découverte. Il a appris que les moteurs japonais tournent très bien (l'émission montrait des réfrigérateurs, des aspirateurs et autres appareils ménagers ainsi équipés). L'équipe de l'inventeur a résolu les problèmes techniques, ce qui permettra aux générateurs d'être disponibles d'ici quelques années. Werjefelt s'intéresse davantage à la production d'électricité et pense que de nouvelles centrales (NDLR : mais est-il nécessaire de centraliser l'énergie ?)basées sur son Générateur Magnétique produiraient de 15 à 18 fois plus d'électricité que celles actuellement en service.

Des commentaires extraits d'un groupe de discussion

" … le secret des moteurs de Werjefelt et de Muller (voir ce nom) pourrait résider dans la commutation rapide du système d'équilibrage on et off. Il s'agit là de dévier le flux avec une bobine sans noyau avec une énergie électrique plus faible quand le temps de commutation *on* diminue. La force de champ maximum doit toujours atteindre le même niveau, mais plus le temps *on* est court, plus le système est efficace. C'est là que peuvent intervenir valablement les électroniciens.

Est-il possible de réaliser et utiliser une bobine sans noyau afin de commuter *on* et *off* sur des périodes de temps plus courtes tout en assurant une force de champ donnée, et avec ce processus, réduire la puissance à la bobine par impulsions ? Il me semble qu’une bobine traversée par un courant pendant une minute utilise davantage d’énergie que la même bobine traversée pendant une seconde. La question se pose alors de réduire la constante de temps inductive tout en conservant une force de champ donnée et tout en diminuant l’énergie d’entrée dans la bobine. "

Le principe de base des machines de Werjefelt (et de Muller) est simple.

Dans celle de Werjefelt, les forces d’attraction entre le rotor et le stator sont équilibrées en connectant un rotor et un stator fonctionnant en répulsion. En fait, tous les deux, une fois couplés, tournent comme s’il n’y avait aucune force au travail, comme s’il n’y avait aucun aimant ; c’est comme si le montage était en bois. La machine a été construite sur ce principe et fonctionne selon le témoin qui poursuit : mais que se passe-t-il lorsque l’on met une charge sur la machine ?

Si le circuit de répulsion a été coupé au bon moment, il y aura des forces d’attraction dans la partie génératrice, et un travail pourra être accompli. Plus la machine tourne vite, plus le temps de commutation dans la partie de la répulsion est court et meilleure est l’efficacité.

C’est comme si ces machines supprimaient la gravité pour un temps, soulevaient un objet, et rétablissaient la gravité, le tout générant un travail. Les aimants permettent d’accomplir la même chose car on peut les commuter. La vitesse de rotation, le *timing*, l’utilisation d’une section d’équilibrage pour annuler les forces entre le rotor et le stator dans la partie génératrice font que ces machines, peu connues, produisent un excès d’énergie vérifié.

Magnetic Battery
CN2587067

2003-11-19
Inventor(s): SHANG QIXIN [CN]; LIU YUESHENG [CN]
Classification: - international: H01M2/20; H01R3/00; H01M2/20; H01R3/00; (IPC1-7): H01M2/20; H01R3/00

MAGNETIC ENERGY BATTERY
WO9512886

1995-05-11
Inventor(s): XIE DAXIN [CN]
Classification: - international: H01F1/03; H01F7/02; H02J15/00; H01F1/03; H01F7/02; H02J15/00; (IPC1-7): H01F7/02; H01L43/00; H02J15/00
- European: H01F1/03; H01F7/02; H02J15/00
Also published as: CN1090675 // AU8056594 (A)

Abstract -- The magnetic energy battery of the present invention comprises a casing, a positive

terminal and a negative terminal. The main body of the battery is a cylindrical permanent magnet (1) having two end planar surfaces which are magnetized such that a vortex magnetic field (2) is formed inside. The vortex magnetic field (2) is a circle form concentrically with the axis of the permanent magnet (1) and the direction of the magnetization is perpendicular to the axis of the permanent magnet (1). The battery can directly produce electrical power from magnetic energy and can be recharged by magnetization repeatedly.

Magnetic battery
US4709176

1987-11-24
Inventor(s): RIDLEY WILLIAM E [US]; SPECTOR GEORGE [US]
Classification: - international: H02K35/02; H02K35/00; (IPC1-7): H02K35/00 - European: H02K35/02

Abstract -- A magnetic battery is provided that includes a helical spring threaded onto a mnagnetic core to increase relative movement between the magnetic core and coils that may be coated with sulfer and zinc oxide to enhance electricity extracted therefrom. The magnetic battery is built into a flashlight casing so that oscillatory motion will provide electricity to operate a lamp therein.

Joseph C. YATER

Random Energy Fluctuation Converter

Joseph C. Yater, "Power Conversion of Energy Fluctuations" ; *Phys. Rev.* A 10 (October 1974) : 1361-1369
(PDF, 637 KB)
See also: Phys. Rev. A 18 (August 1978):767-772,
Phys. Rev. A 20 (August 1979) : 623-627, and
Phys. Rev. A 20 (October 1979) : 1614-1618.

E. Eernisse : "Comments on 'Power Conversion of Energy Fluctuations" ; *Physical Review A* 18 (2) : 767-772 (August 1978)
(PDF)

Joseph Yater (Energy Unlimited Inc.) : Reversible Energy Fluctuation Converter **(PDF)**

A.L. Hedrich : Final Technical Review : Power Conversion of Energy Fluctuations" (2 June 1976) **(PDF)**

Prepared Statement of Joseph Yater **(PDF)**

Energy Unlimited Inc Prospectus **(PDF)**

Walter M. Hollister : Invention Evaluation -- Power Conversion of Energy Fluctuations **(PDF)**

Joseph C. Yater : Resumee **(PDF)**

Tom Entham : "Bureauceacy Keeps Energy Tool Untested" : *San Francisco Sunday Examiner & Chronicle* (1 July 1979), A-14 **(PDF)**

---

http://prola.aps.org/abstract/PRA/v20/i2/p623_1

Phys. Rev. A **20, 623 - 627 (1979)**

Rebuttal to "Comments on `Power Conversion of Energy Fluctuations' "

Joseph C. Yater

The conclusion predicting no practical power output from the power conversion of energy fluctuations is shown to be the result of fundamental errors in physics and in the theory of the master equation. One decisive error was to compute the output voltage by assuming that no energy for the electron barrier crossings of the cold diodes is supplied by the fluctuation energy of the heated diode. Another fundamental error in the physics was to assume that the total available fluctuation power is small, whereas it is orders of magnitude larger than the radiated power alone. Computations using the master equation corrected for errors in physics give a maximum output power that is within (91-99)% of the Carnot-cycle efficiency for this reversible cycle. Physically realizable diode design options are noted (thin film, quantum effect, thermionic) that can enable the high power output and high-efficiency potential of this approach to be achieved with small material cost

---

http://prola.aps.org/abstract/PRA/v20/i4/p1614_1

***Phys. Rev. A* 20, 1614 - 1618 (1979)**

Relation of the Second Law of Thermodynamics to the Power Conversion of Energy Fluctuations

Joseph C. Yater

The relation of the second law of thermodynamics to the power conversion of fluctuation energy is analyzed using the master equation of the model for the conversion circuit. The performance equation for independent particles shows that the power-conversion performance is given by the second law both for classical and quantum-effect diodes. The relation of the second law to power-conversion models based on the theoretical and experimental results for diode performance for interacting particles exhibiting manybody, multiparticle, or other anomalous and excess-current effects is examined. The performance equations are derived from the master equation for models for interacting particles to determine the conditions required by the second law for power conversion. These conditions are given in terms of the distribution throughout the power-conversion circuit for all the parameters that determine the particle and multiparticle barrier-crossing probability such as the effective mass and spectral density functions. Circuits for spectroscopic measurements for power-conversion circuits with interacting particles are noted. Using selected experimental values for the diode nonlinearity factors in these circuits, open circuit voltages are computed that are not predicted by the second law of thermodynamics.

---

http://www.osti.gov/energycitations/product.biblio.jsp?osti_id=6612252

Converting Solar Energy into Electricity: A Major Breakthrough (PDF)

Hearing before a Subcommittee of the Committee on Government Operations, House of Representatives, Ninety-Fourth Congress, Second Session, June 11, 1976
Publication Date 1976 Jan 01
OSTI Identifier OSTI ID: 6612252

Description/Abstract -- At this hearing, Joseph C. Yater, Lincoln, Massachusetts, presented for review his invention to convert heat or solar energy directly into a useful form of electric energy. He described the technical features of the device after briefly discussing the general nature of fluctuation voltage, as this is basic to the invention. The device of the invention first converts the thermal energy to electric voltage fluctuations which in turn are relayed across a thermal barrier to small rectifying circuits to produce with high efficiency useful direct current output power. Mr. Yater then listed the applications for this invention -- Earth solar power, steam power plants, topping and tailing, space solar power stations, and heat pumps or refrigerator. All applications result in large energy savings. The circuit may be used in a refrigerator made to reduce the input noise voltage and increase the sensitivity of radio receivers and amplifiers. The publication contains statements by Albert L. Hedrich, National Bureau of Standards; Dr. Robert L. Hirsch, ERDA; and George P. Lewett, National Bureau of Standards.^Additional information submitted

for the record are also included.^(MCW)
Publisher Committee on Government Operations,Washington, DC

US Patent # 4,004,210

Reversible Thermoelectric Converter with Power Conversion of Energy Fluctuations

Abstract -- A thermal converter for transmitting electric energy fluctuations of small circuits at a higher temperature across a thermal barrier to small circuits at a lower temperature for high efficiency conversion of the electric energy fluctuations to electric power. Apparatus and circuits are disclosed which can transfer with a high coefficient of performance heat from the lower temperature circuits to the higher temperature circuits.

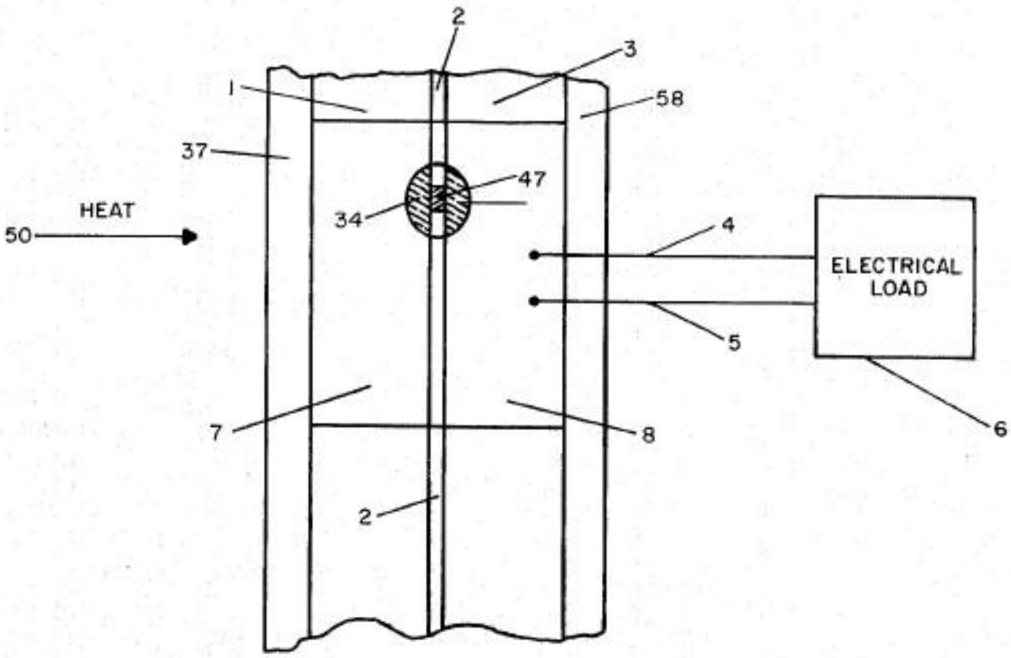


Figure 1a

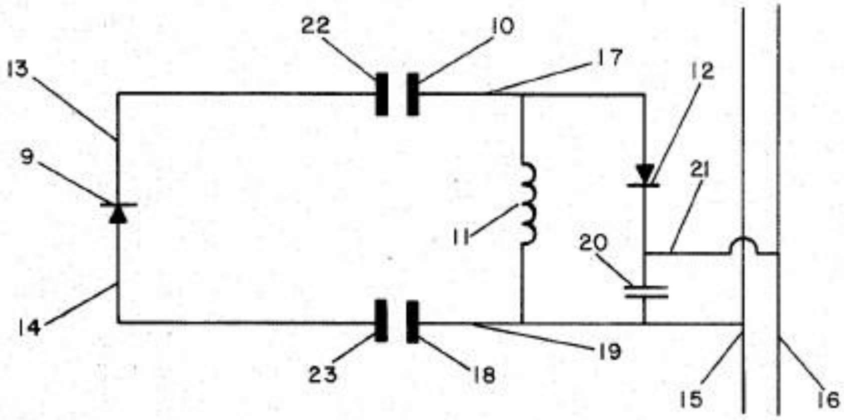


Figure 3a

...

USP # 5470395

Reversible Thermoelectric Converter

Also published as: **WO9320589 // US5356484 // JP7506219 // EP0634055 // EP0634055**
1995-11-28

Abstract -- A reversible thermoelectric converter includes first and second quantum well diodes

and an electrical connection between the first and second quantum well diodes without a thermal barrier between them. Each quantum well diode includes first and second electrodes wherein electrons are quantized in discrete energy levels and a dielectric layer providing a potential barrier between the first and second electrodes. When electrons in the first quantum well diode have a higher temperature than the electrons in the second quantum well diode, electric voltage fluctuations resulting from transitions of the electrons between the energy levels in the first quantum well diode are coupled from the first quantum well diode to the second quantum well diode.; The reversible thermoelectric converter can be operated for power conversion of thermal energy to electric energy, as a heat pump or a refrigerator, or as an amplifier. A planar array of reversible thermoelectric converter elements provides a desired output voltage and current.

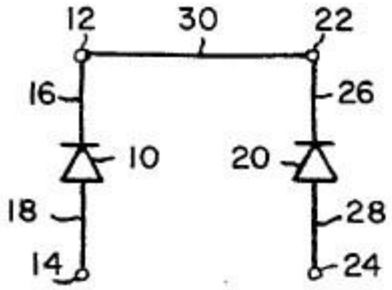


FIG. 1

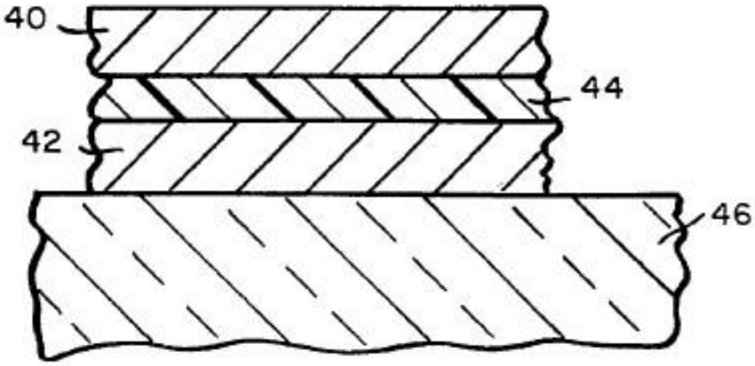


FIG. 3

...

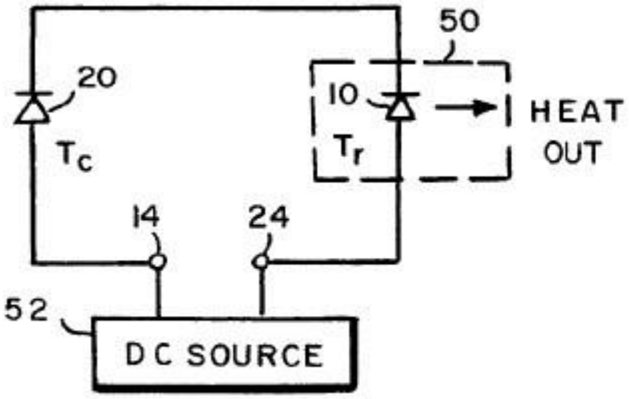


FIG. 6

...

USP # 5623119

Reversible Thermoelectric Converter

1997-04-22
Inventor(s): YATER JOSEPH C [US]; YATER JANE A [US]; YATER JOAN E [US]
Applicant(s): YATER JOSEPH C [US]; YATER JANE A [US]; YATER JOAN E [US]
Classification: - international: H01L35/00; H01L35/32; H01L35/00; H01L35/32; (IPC1-7): H01L37/00 - European: H01L35/00; H01L35/32
Also published as: US5889287 (A)

Abstract -- A reversible thermoelectric converter includes first and second quantum well diodes and an electrical connection between the first and second quantum well diodes without a thermal barrier between them. Each quantum well diode includes first and second electrodes wherein electrons are quantized in discrete energy levels and a dielectric layer providing a potential barrier between the first and second electrodes. When electrons in the first quantum well diode have a higher temperature than the electrons in the second quantum well diode, electric voltage fluctuations resulting from transitions of the electrons between the energy levels in the first quantum well diode are coupled from the first quantum well diode to the second quantum well diode.; The reversible thermoelectric converter can be operated for power conversion of thermal energy to electric energy, as a heat pump or a refrigerator, or as an amplifier. A planar array of reversible thermoelectric converter elements provides a desired output voltage and current.

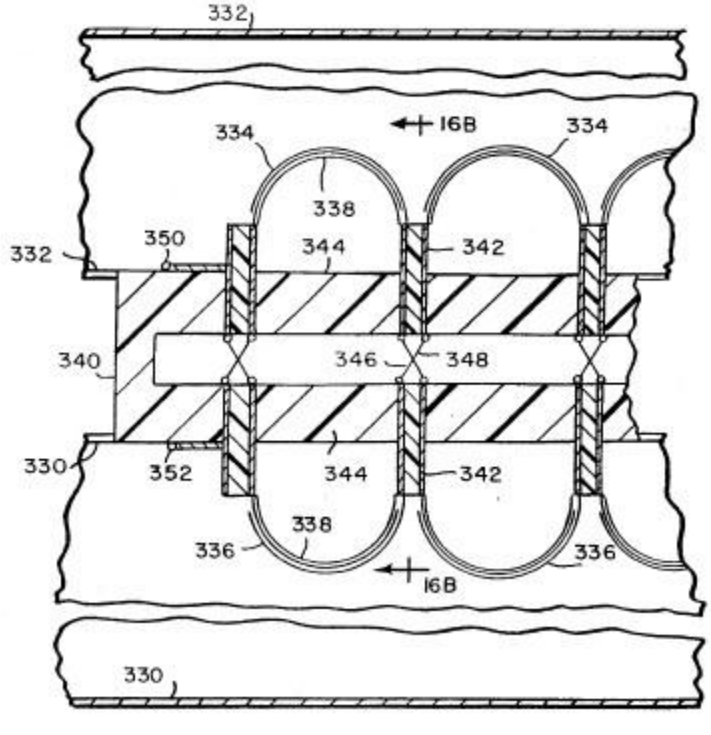


FIG. 16A